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ADDRESS.

THE NERVOUS SYSTEM IN DISEASE AND THE PRACTICE OF MEDICINE FROM A NEUROLOGIC STANDPOINT.

MEDICAL PROGRESS—PROGNOSTICATIONS OF THE FUTURE OF MEDICINE.

Address in Medicine, read before the AMERICAN MEDICAL ASSOCIATION, at San Francisco, June 6, 1894.

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In this age of preëminent progress in every department of human research and endeavor, I congratulate you on the onward march Medicine has made and is yet making towards its glorious goal—the mitigation of human misery and the mastery of disease, and especially do I congratulate you on the part American Medicine has taken in the scientific triumphs of the closing century over the encompassing elements and environments adverse to man's health and strength and consequent happiness and efficiency in the affairs of life. If we look back over the passing century for only a few decades, at her contributions to the welfare of man, we find that she has given more than her full quota to the common fund of human happiness. She has made physical and psychical tranquillity and power, happiness and length of days, possible to man under the strain and pressure of modern progress. She has searched out and is searching out the causes which are inimical to, or promotive of, man's strength in the battle of life. She teaches him how to evade the one and to utilize the other in power of mind and body.

As our father Hippocrates drove the devotees of superstition from the temple of Hygeia, and taught the people that offended gods could neither bring, nor propitiated gods dispel disease, and was an example of medical hygiene in his own longevity, far beyond that of any man of his time, and as that later medical devotee of Æsculapius, Andreas Vesalius defied the popular prejudice and ecclesiastical power of his day at the risk of his own life, to make his first human dissection (and whose unfortunate untimely death the world has never ceased to deplore), so we, his professional descendants, continue to this day breaking down and ignoring the barriers of ignorance, of prejudice and superstition that have stood or now stand in the way of man's happiness and prosperity, unlocking the secrets of nature's *arcanum*, and setting the captive mind and organism free from the enthrallment of disease and the gloom of untimely death.

Substitutive inoculations, beginning with the triumph of vaccinia, for establishing tolerance and immunity from other violent diseases, are spreading the rescuing power and glory of our noble profession, and the names of Jenner and Pasteur are now immortal. And the "great white plague," consumption, with its 165,000 annual victims in this country alone will soon be a thing of the past, through wisely applied antisepsis.

Electroscopic explorations now penetrate the dark and otherwise hidden places of the human body, making it a glow of light to the diagnostician, while other diagnostic means, electric, physical, chemical, dynamometric, æsthesiometric, thermometric, ophthalmoscopic, laryngo-pharyngoscopic, otoscopic, microscopic, spectroscopic, oncographic, sphygmographic, auditory, percussional and tactile diagnosis and urinalysis, come to the aid of the modern physician in searching out disease. What would our painstaking fathers in the profession have given to have seen this day of accurate methods of determining the existence and place and boundaries and prognosis of morbid conditions. By these means, no viscus and no system of the body escapes the searchlight of modern medical diagnosis.

With these aids at our command, but little, if any, of the human anatomy in health or disease is absolutely beyond the reach of our science, and scarce any part beyond some relief from the multiple resources of medical art. That *noli me tangere* of our ancestors, the abdominal cavity, is no longer a *terra incognita* to the resources of surgery, thanks to Wm. Lister, of London; McDowell, of Kentucky; Battey, of Georgia; and Murphy and Senn, of Chicago; Lane, Gross, Agnew, Frank Hamilton and John T. Hodgen. The once hidden recesses of the brain also are now with impunity penetrated to where our ancestors dared not go, saving lives and minds formerly doomed to destruction, thanks to Fritsch and Hitzig, of Germany, Ferrier and Horsley, of England and Bartholow, of America, the latter having been the first physician in the world to explore and prove the truth of cerebral localization by demonstrations on the living human brain.

"The time has been that when the brains were out the man would die." But we have changed all that. With judicious neuriatic council, profound anatomical knowledge, and skilful surgery, science now penetrates to the very dwelling place of thought and volitional motor impulses in the cerebral cortex, enabling perishing victims to be saved by the helping hand of modern neurology and cerebral surgery.

Thus does medical science move majestically onward in her benefactions, and man, her beneficiary, moves forward to his higher destiny, under her benevolent ministrations.

I could not in the time allotted to this address give even an outline of general medical progress in our day, and I presume it is more appropriate and really expected that I should make an address more in the line of my special observation. Accordingly, since general practice is advanced by light from every quarter, I ask your attention to points in the prac-

tice of medicine from the standpoint of a neurologist.

LA GRIPPE, A TOXIC NEUROSIS.

I begin with that discomforting, distressing, disastrous and often fatal malady, la grippe. A disease with which all of us have become painfully familiar; a malady whose insidious destructiveness has not been properly appreciated by either the public or the profession; a disease which has been laughed at and sneezed at by doctor and patient, even while death was stealthily approaching to claim the unapprehensive victim; a disease whose nervous sequences, where death has not intercepted them, have been astonishingly various and grave. I discuss chiefly the neuropathic aspects and sequelæ of this disease. It is, in my judgment, a toxic neurosis, in its early stage a nervous fever, its later symptoms depending on the centers specially touched by its toxine.

Notwithstanding the warnings and apprehensions early aroused in the minds of a few clinicians of keen observation, the gravity of the grippe, especially in its toxic neuropathic sequence is only just beginning to be generally recognized, though many months have elapsed since Julius Althaus, Symes Thompson and W. R. Gowers, of London; Chas. K. Mills, of Philadelphia; myself and other writers, first called attention, since the appearance of the late epidemics, to this now clearly demonstrable fact. And long before these, in former epidemics, Theophilus Thompson, (the father of Symes) and Graves, Blakiston and Peacock had noted the prominence of the nervous symptoms, especially evidences of vagus implications. Its possible fatality in certain familiar forms is now, after a larger clinical experience, much more generally apprehended and dreaded by the profession, especially since the publication of the post-mortem findings of Kusskow, of St. Petersburg in forty cases, and the fatal results in isolated instances reported in the journals from different sections of the country where epidemic influenza has prevailed.

Kusskow's post-mortems showed hemorrhagic and pyemic or septico-pyemic results as the two forms, with purulent and gangrenous inflammation of lung tissues and frequent metastasis to other organs. Hemorrhages and hematomas in the muscular tissue, parenchymatous bleedings and bleedings by diapedesis, pachymeningitis hemorrhagica interna, in one case. In 50 per cent. of the cases, hyperemia of the pia, also meningeal infiltration and suppurative meningitis and hemorrhage into the lateral ventricle, and very frequently lobar pneumonia. The heart muscle was soft, friable and anemic.

Peritonitis was never discovered. The kidneys were found to be usually affected, the spleen contracted, the intestinal canal was unchanged. Calcification was found in the muscle cells similar to those found in typhoid lesions of the bowels, venous thrombosis more often than arterial, besides the often described pharyngo-laryngeal infiltration. As the hemorrhages were invariably unilateral, the author concludes that the lesion involves the sympathetic centers.

But these fatal endings are but little more serious than some of the results of the invasion of this disease into the region of the cerebrum, middle ear, meningeal and brain inflammation and softening, and the issue of insanity.

I have known of several cases of insanity, profound melancholia, abscess of the brain, general neuritis, facial and sciatic neuralgia and fatal paralysis (one hemiplegic), but most of the vagus in this disease and its more chronic sequelæ are largely neural. The heart failure mentioned by Wilks, and seen perhaps by most of us to end life in influenza, is also due to involvement of the vagus center in the medulla, as in so-called grippe pneumonia, which accounts for the rapid fatality of lung implication in grippe, and this heart failure also causes emboli and their consequences. This vagus center involvement accounts for "the great and alarming prostration and cardiac weakness out of all proportion to the intensity of the fever" noted by the authorities. And those other 'striking features" likewise referred to; "delirium," the great nervous manifestations, headache, pain in the back and limbs and unbearable aching and soreness like the dengue fever misery, point also to the nervous system. This, with the meningitis with which the pneumonia is associated, the neuritis and the mental disorders, disinclination to mental effort, melancholia and insanity which follow, as well as the numerous paralyses resulting, some of which, as already noted, terminate life, point plainly to the part the nervous system plays in revealing the presence of this peculiar and rapidly traveling poison of the air, which could spread from St. Petersburg to St. Louis in the short space of a few months.[1]

The profound depression and the feeble intermittent pulse reveal to the neurologist the pathic power of this poison in its attack upon the vital nervous centers, and the bronchitis and the pneumonia, the swelled pharyngo-laryngeal mucous membranes, the middle ear and Eustachian catarrh, coryza, intestinal catarrh and the nephritis, even, are no antagonizing exceptions, nor does the occasional finding of pneumococci invalidate this neuropathic view. They are seldom found in the grippe and more often elsewhere.

The grippe pneumonia, which is one of its most characteristic and fatal symptoms, is such as might come from section of the vagi, and a study of the origin and many distributions and functions of these nerves, pulmonary, cardiac, etc., gives us lucid explanation of the phenomena of the disease not otherwise so readily understood.[2]

[1] It is a mistake, therefore, and in the light of lately recorded experience and in that of my own limited observation, to say that "in the delicate and aged alone do we see fatal results," and it is a further mistake to attribute such results, when they do occur, "only to the intensity of the fever," as one of our most brilliant and gifted authors (W. Osler, "Practice of Medicine," 1892) has done. His sagacious clinical acumen compels him, however, to add "profound depression."

[2] The vagus largely governs the lungs, the heart and the circulation in this disease, and toxic irritation and depression of the medulla and pons explain most of the symptoms of la grippe. Section of both vagi above the origin of the superior laryngeal nerves is followed by loss of power in the muscles of the larynx, as well as of sensibility in larynx, trachea, bronchi and lungs. The reflex act of coughing is abolished, the glottis does not close, food and foreign bodies, saliva and irrespirable gases get into the respiratory passages and cause inflammation. This was shown as far back as 1749 by Valsalva and Morgagni; also by Langallois in 1812. This has been confirmed so often since that no one now disputes it. The vessels of the lungs become surcharged with blood, owing to the labored and difficult respiration and the long distension of the lungs between inspiration and expiration; serous exudation and pulmonary edema follow, blood exudes and pus forms in the air vesicles and a probable paralysis of the pulmonary vasomotor nervous system takes place to add to the pulmonary engorgement through the capillary system of the lungs. The pneumonia which takes place immediately after section of the vagi was found by Michaelson, according to Landois and Sterling, to be in the lower and middle lobes; the pneumonia following section of the recurrent nerves is shown more slowly in catarrhal inflammation of the upper lobes especially. Rabbits die with symptoms of pneumonia from section of the vagus. They may live for several days, if the recurrents only are cut. Dogs live longer. If the ninth, tenth and twelfth nerves are torn out from one side in a rabbit, death also takes place from pneumonia, according to Grünhagen.

In birds the upper larynx remains closed firmly and death does not take place for eight or ten days, and then with symptoms of inanition and fatty degeneration of the heart. The heart shows cloudy swelling and wax-like degeneration. Frogs die of asphyxia under the same circumstances. Some fibers of the vagus seem to exert a trophic influence over the lungs and heart.

Unilateral section of the vagus in rabbits is followed within forty-eight hours by the appearance of yellowish-white spots in the myocard-

It would be interesting, but too tedious at this time, to further follow this wandering and widely connected nerve, and note its relation and that of its near neighbor nerves, which originate in the fourth ventricle.

All that we have thus far said has just warrant in the recorded and accepted facts of neural physiology, and the careful clinician will not fail to note their significance, and much more by study of the physiology of the other nerves whose nuclei originate in the fourth ventricle, and this nerve center when touched with its peculiar toxine, in its bearing on the symptomatology of la grippe.[3]

Influenza greatly weakens the *vis medicatrix* of the nervous centers, permits latent tendencies and slumbering diseases to spring into active force and leaves the patient, after the active febrile stage has passed and after what is erroneously regarded as the stage of convalescence, in a state of profound neurasthenia or toxic neuratrophia, from which spring many ills. It will develop into mischievous activity a latent rheumatic gout, neuralgia, malaria or syphilis. We may expect to combat every morbid tendency the patient is prone to, before we have entirely cured him of this malady. These latent morbid aptitudes so brought into renewed activity seriously complicate la grippe and embarrass prognosis. These should be appropriately combated, to leave nature as unembarrassed as may be possible, to contend with the devastating foe. And because of the gravity of the nerve prostration and of the nervous sequelæ, the patient should be put to bed and kept there till the fever storm is over, and in the house much longer in order to conserve the fighting energy of the assaulted nerve centers.

This injunction should be as imperative in many cases of grippe as it should be in cholera, for influenza is a far graver malady in its immediate and especially remote effects on the nervous system, than it at first sight appears.

ium, especially near the inter-ventricular septum; on the papillary muscles and along the furrows of the coronary arteries. The muscular fibers exhibit retrogressive changes whereby their striæ disappear; they become swollen and filled with albuminous granules. After eight or ten days the interstitial tissue of these foci becomes infiltrated with small round, granular cells, especially near the blood vessels. At a later stage the interstitial connective tissue increases in amount and the muscle atrophies. No effect is produced by section of the depressor or sympathetic fibers, and Fautino thus concludes that some of the fibers of the vagus have a specific influence on the myocardium. The same fact is not so nearly demonstrable in regard to the lungs, but it is equally inferable.

The pulmonary branches of the vagus supply motor and sensory (cough exciting) branches to the whole bronchial system of the lungs (the pulmonary vessels being supplied with vasomotor nerves) from the sympathetic system.

They send afferent fibers to diminish, under stimulation, the activity of vasomotor centers, and thus cause a fall of the blood pressure during forced expiration, and similar fibers to act on the inhibitory centers of the heart, and thus accelerate the heart's contractions. Simultaneous stimulation of these two sets of fibers alters the pulmonary rhythm.

The vagi also contain afferent fibers which go from the pulmonary parenchyma to the medulla, which are continually in action, stimulating the respiratory center. Consequently, section of the vagi deepens the respirations and diminishes their frequency. Stimulation of the central end of the vagus also accelerates the respirations. Labored and difficult respiration may occur either when these fibers, which excite the respiratory center reflexly, are cut off, or acting centripetally to afferent impulses proceeding upward in the vagus. Conditions determining pneumonia may therefore exist in the nervous mechanism of the lungs and in its points of origin in the cord and superimposed medulla oblongata. If the trunk of one vagus or its center is paralyzed respirations are labored, deep and slow, such as follow section of both. Stimulation of the cardiac branches of the vagus may cause temporary suspension of the cardiac contractions, a feeling of great depression and of impending dissolution, such as we see sometimes in grippe, and as we see in dyspeptic asthma and the abdominal frog tapping experiment of Goltz.

[3] The therapeutic lesson of the neuropathic implications of influenza is rest and reconstruction (pending the search after its causative bacteria and their proper bactericide), rest and reconstruction, that phagocytosis may be promoted in the blood, chloral as the best antiseptic, hypnotic and calmative, for even the delirious stage. In the latter, ammonium bromidum added. For the pain, the coal-tar derivative analgesics, and sweat-producing opiate combinations, the elimination of all disturbers and depressors of nerve centers entering through the blood, like the rheumatic and malarial or venereal poison.

DYSPEPSIA AS A BRAIN DISEASE.

What is true of the neural relations of grippe is largely true of those of dyspepsia, a disease which, as Amariah Brigham, an American physician, was the first to show, about 1840, usually has its origin in the brain, as I have elsewhere attempted more elaborately than I shall do at this time, to establish.

I shall only ask you hear to consider it as a possible brain affection from what we know of its causes, those in whom it usually exists and the conditions of mind, occupation and environment of those in whom we find it most often manifest.

Dyspepsia belongs to the brain working, brain worrying and nerve tone exhausting class, to those who bother their brains and eat little or not over much, rather than to those who gormandize; to those who burn the midnight oil in study, do not sleep from fret and worry and from carking care, rather than to the *bon vivant* high liver, and he who tarries long at the wine. It belongs to the men of affairs and women of care, to the infelicitous and the disappointed in hope and ambition, those whose cerebro-spinal systems are inordinately strained and inadequately repaired in life's battle, so that their lower corporeal functions suffer from defective innervation of the viscera concerned in the maintenance of organic life, and whose cerebro-spinal systems consequently reciprocally suffer from defective appropriating power and inadequate nutrition, but starvation alone seldom develops dyspepsia.

It is through the neural connections of the brain and stomach that the acknowledged apepsia nervosa of neurology is a clinical fact. It is thus also that the relationship of nausea to migraine as the concomitant of the latter, but so long considered the cause, is explained, and conversely, that we understand *vertigo e stomacho laeso*, as first described and explained by that great master in medicine, Trousseau.

The brain influences the stomach and the stomach influences the brain, but the power of the former over the latter is far greater than the latter over the former in chronic conditions.[4]

To concede this influence of the nervous system over the digestive processes, we need not ignore any fact of chemico-biologic research, nor shut out any of the light thrown on the subject by the distinguished American investigator, Beaumont, and those who have followed him in elucidating the functions of the stomach. On the contrary, Beaumont's investigations proved the power of mental state over the digestive processes of Alexie St. Martin.

The liver, the kidneys, the bladder and the bowels are similarly influenced by emotion, and the lymphatic system is likewise under nervous control like the arterioles, by the vasomotors.

A center in the medulla also influences through the chorda tympani nerve and probably the sympa-

[4] Great brain and nerve strain, as in insanity, brittles the bones; grief and fright blanch the hair and face; fear paralyzes the heart, depresses temperature, causes excessive and clammy perspiration; anxiety arrests secretions and shrivels the skin; remorse wastes away the body; anger flushes the face, and so fills the brain with blood that its vessels burst and the victim falls with apoplexy; shame flushes the cheek, slows the heart and respirations; sorrow shows itself in tears; love and good fortune brighten the countenance and quicken the step and pulse, and lift up the form, while adversity and remorse sadden the face, slow the pulse, bend the form and depress the bodily movements. These things and many needless to mention, show us the potency of mental influence, through its proper neural channels, on the movements of the organism. We can not deny them in regard to the stomach. On the contrary, as we see the systole of the heart arrested by emotion, so we see digestion stayed by disagreeable and depressing thought. Mental force, through psycho-neural media, pervades the body and the stomach is not exempt from its invigorating or depressing influence over its physiologic functions.

thetic, the salivary secretion. A center there also influences the action of the kidneys. The chorda tympani contains secretory and vaso-dilator fibers, the sympathetic, vaso-secretory and vaso-dilator. Salivary secretion is induced reflexly by mastication and the irritation of the presence of food in the mouth and stomach and by the vivid remembrance of certain foods whose eating has made an agreeable impression, and by emotion.

We swallow, we digest, we sob and vomit by means of vagus fibers, and its fibers go to the celiac plexus, the spleen, the liver, the kidneys and the small intestine. Esophagismus, gastrodydia, or cardialgia, tachycardia, palpitation and angina pectoris and spleen, intestinal liver and kidneys, are influenced by this wonderful nerve, as well as asthma and exophthalmic goitre and many affections of larynx and lower air passages; notwithstanding the complete pathology of this wonderful nerve and of many of the interesting diseases connected with it may be said to be yet somewhat obscure.

The vagus and the vasomotors influence or govern circulation, respiration and digestion.[5]

The dominion of the nervous system over the spleen is also evident. This fact is one of the concessions of the physiology of our day. Stimulation of the medulla leads to contraction of this organ. Not only its arteries but the organ as a whole is maintained in a state of tonic contraction to a certain extent through the agency of the nervous system.[6]

HYSTERIA.

No better or more familiar illustration of the possible potential relation of the nervous system to disease need be mentioned before a body of practical clinicians that that of hysteria and its neural peculiarities and associated functional disturbance of organs (that mimic of all diseases with its protean features in so many instances), its atrophies, paralyses, contractures, alternating anesthesias, hyperesthesias, paresthesias and aphasias, aphonias, dysphagias, stigmata, emeses, suppressions, excesses and and perversions of excretions, nutritional, sensory, motor, psychical, visual, tactile, auditory and emotional derangements.

Hysteria illustrates in an especially forcible manner from the standpoint of clinical observation how suddenly and how extensively nearly all the organs of the body may be profoundly disordered in function by morbid impression through the nervous system and these pathologic impressions often repeated and prolonged do sometimes develop actual and enduring organic diseases.

There is a suggestive practical lesson in this "neuromimesis" or mimic neurosis, as to the relation of the nervous system to diseases in general. As the study of this disease led Goodell to discern and portray the nerve counterfeits of uterine disease and to say: "The crying error of the day is the mistaking of nerve disease for womb disease;" so I say of disease in general, the crying error of the day is the ignoring of neuropathic implications, concomitants and sequences of organic, visceral and general diseases, and the mistaking of nervous for other diseases.

As any organ of the body may fail functionally and be perverted in the performance of its functions, so may we have organic derangements from frequent repetitions of functional disorder, if the trophic and vasomotor nerve centers share in the functional disturbance.

THE TROPHO-NEUROSES.

Here we enter the clinical domain of the trophoand vasomotor neuroses whose name is legion, from symmetrical gangrene and local asphyxias of Raynaud's disease, to the ecchymoses, etc., pigment hypertrophies, cornifications, nævi, pigment atrophies, (lepra, vitiligo, etc.), arthritic atrophies, climacteric and menstrual cutaneous swellings, etc., urticaria, angioneurotic edema, the night palsy of Ormerod, secretion anomalies like seborrhea, hyperidrosis, amidrosis and the occasional vasomotor disturbances of the fevers, as in typhoid and of dropsy and anasarca.[6]

About all the changes which come under our eye in the skin and muscles, are due to impressions made through the trophic and vasomotor nerves, influencing the circulation and growth, among which we may instance scleroderma, myxœdema or cachexia pachydermique and the myopathies, pseudo-hypertrophy and progressive muscular atrophy.

PHYSIOLOGIC RHYTHM, ETC.

The nervous system regulates the law of rhythm in the animal economy in both its physiologic movements and pathologic perversions of movement, and this fact affords us, from a neurologic standpoint, important hints for the management of our patients and therapeutic suggestions, hints often overlooked in practice.[7]

The nervous system is almost an omnipresent system of the human organism. The more we learn of it the more do we wonder at man's wondrous mechanism. The more we see of its relations to organism the more we discern of its omnipotence and of its subserviency in the workings of the human economy. It excites, it controls, it reveals and is revealed and influenced by disease. The sensory nerve trunks and branches can be traced as clearly by neuralgia (sciatic, intercostal, trifacial, etc.), and by neuritis, as by the anatomist's scalpel; and the various paralyses reveal the channels of motor conduction and centers of origin of motor impulse, thus affording us means of diagnosis beyond the reach of our unaided vision. Thus cerebral localization has been confirmed

[5] This is just such an observation as should come more frequently from general practitioners. The vasomotor nervous system is omnipresent in its organism. It follows the vascular system to the innermost recesses of the body, and the number of its morbific functional possibilities is beyond computation. Some of the vasomotor ataxias, quite familiar to practicing neurologists who have opportunity for general medical observation, have been noticed and given a clinical grouping under the tenor "Vaso-Motor Ataxia," by S. Solis-Cohen. Vide "Vaso-Motor Ataxia," by S. Solis-Cohen, American Journal of the Medical Sciences.

[6] Physiologists now maintain that its metabolism is controlled directly by the nervous system and they are far nearer than formerly to an understanding of its function, just as the same system is concerned in the bilious and glycogenic functions of the liver as we see demonstrated in the fourth ventricle puncture proof of artificial glycosuria, and exsection of the pancreas has resulted in glycosuria influencing the nervous system as profoundly as thyroidectomy. The spleen may be diminished in size either generally by the stimulation of one of the afferent nerves, and, locally, by direct application of the electrodes to the surface of the organ. And Paul Gibier has produced glycosuria by psychical excitation of animals. (Vide, Trans, N. Y., Acad. Med., 1893.)

[6] The term, trophic disorder of muscles and organs, is at present much more restricted than it manifestly will be when physiology shall have more accurately numbered and located the trophic centers, whose influence over the tone and quality of the tissues and organs is now no longer a question. Certain nerve centers and nerve fibers do undoubtedly influence the growth and repair and atrophy or decay of the tissues, and Romberg, in this discovery, has rendered medical science in its practical aspects a priceless service.

[7] It suggests, for instance, that we should interrogate our patients as to the normal rhythmic time for eating, defecating and sleeping, in the administration of food, of laxatives and hypnotics, and suggests also the best part of the day for necessary disturbance of our patient with medical ministrations, ablutions, driving, exercising, etc. All habit, physiologic or pathologic, is bound up in the law of rhythm and a nervous system is essential to this phenomena.

as a fact of neuro-physiology, as well as by electro-vivisection.

In the interrogation of morbid symptomatology; convulsive disturbances, tremors, subsultus, paralysis, circulatory changes, the periodicity of intermittency and remittency, temperature changes, delirium and other phenomena of the fevers, the collapse, spasm and ricewater discharges of cholera, and even of the remote causation of cancer and of many of the dermatoses, we can not help but see how intimately associated the nervous system is with the movements of the organism under the influence of disease. These phenomena may, truly, in a manner be called nervous. Certain it is that the nervous system in disease plays no insignificant part, often the most important; and to timely tranquillize and reconstruct it against the assault of the causes of disease in the organism is no small part, if not the chief part of the physician's work, for, though the blood carry germs of deadly disease to vital nerve centers, to conserve these centers by suitable therapeutic reinforcement against their destructive work, means victory over impending dissolution.

The *vis medicatrix naturæ* resides in these nerve centers and in their power to maintain, under stress of invading disease, the normal metabolism in the various organs, and as I believe, though this is not yet susceptible of scientific proof, of the furnishing and multiplying of the phagocytic hosts of conservative destruction in the healthy blood. If the blood is the life, the nervous system is likewise the life of the organism. In this dual government of the economy in health and disease, both

> "Are parts of one great whole,
> Whose life the blood is,
> And the nerves the soul,"

if this liberty of paraphrase before employed by me may be here again permitted. If we realize this fact in our clinical conclusions and efforts at treatment, we make better practitioners at the bedside than if we seek to explain the phenomena of disease by a single factor like modern humoralism or solidism, or visceralism, or the germ theory, absolute and unconditional. It requires something more than a morbific germ to develop disease. The other factor is an assaulted, yielding and morbidly responding organism, and back of that are the disturbed or resisting mechanisms of neural control, central or peripheral, which resist, cast out or succumb to disease.[8]

THE IMPORTANCE OF EARLY RECOGNIZING NEURASTHENIA.

A great advance was made in clinical medicine when neurasthenia, or as I have called it, general functional neuratrophia, was first recognized and differentiated from secondary exhaustion of the general nervous system, from the auto-toxicity of retained excretions and profound physiologic brain and nerve and muscle tire. This condition described by Van Deusen, an American physician, in 1877, followed by Beard, another American physician, in 1878, is one in which the nervous system appears to suffer in its nutrition, normal stability and power, involving the viscera and nervous system only in a functional and secondary manner.

Neurasthenia or general functional neuratrophia, shows itself chiefly in the brain and is psychically characterized by timidity of conduct, nervous irritability and morbid fears, bordering on, but not becoming delusions, and physically by functional atonicity of the viscera, especially of stomach, heart, bowels, and motor and psychical areas of the brain. It is the cause and source of apepsia nervosa and of cerebro-spinal irritation, and differs from hysteria, with which it is sometimes mistakenly confounded, in being continuous and not paroxysmal, and in being far more common in men than in women.

It is a conservative neurosis like migraine, saving its victims from profounder breakdown, because the individual will endure but so much and can not stand a longer strain without a period of rest and repair, whereas if he could endure more, the issue would be apoplexy, paralysis or other organic trouble. Before its recognition, it was thought necessary that some organ or system (the sanguineous, hepatic, etc.) should be profoundly affected to justify a conclusion of disease, and great injustice was done its victims under designation of hypochondriasis, hysteria, simple nervousness, etc., not requiring medication. Neurasthenia is a nineteenth century evolution in clinical medicine.[9]

THE RELATIONS OF NEURAL OVER-STRAIN TO THE DEVELOPMENT OF CANCER AND CONSUMPTION.

The developmental relations of cancer to neural over-strain, worry and decadence of the brain and allied nervous system have lately received renewed consideration, since the writer first called attention to this singular fact in the cases of General Grant, Napoleon Bonaparte, Thomas H. Benton and others. I believe, as I many years ago stated, that a breakdown in the central nervous system by which its trophic and resisting power are greatly lessened, makes possible and precedes all cases of cancer. But for this, cancer germs, if such exist, would be innocuous. The same fact is in a manner true in regard to the receptivity of phthisis and other diseases of bacillic or bacteric origin. Seeds, to germinate, must have receptive soil, and in relation to cancer, as Sims Woodshead, who believes in its parasitic causation, declares, the germs require a lowered condition of the vitality of the epithelial elements in which they make their habitat, as conditions of their growth and development. Finding a soil, they multiply, secrete their toxines, and by their irritant action on the parts which they invade, resemble certain well-known pathogenic microbes, especially Koch's bacillus, in the degenerative processes and products which they entail.[10]

[8] Certain phenomena of reflex, in clinical and surgical therapy too, are better appreciated by him who thoroughly considers the nervous system in his practice. Such an one usually recognizes two factors in the peripheral causation and the morbidly responding center, which betrays in an extraordinary manner the existence of the irritation, peripheral or central.

Benjamin Rush notes the fact that Leo X. died of joy upon hearing that a great calamity had befallen the French nation; the door-keeper of Congress died from the same cause, inducing cerebral apoplexy, upon learning of the capture of Lord Cornwallis and his army during the Revolutionary war; and the great Harvey, who discovered the circulation, died in a fit of anger. It is because impressions upon the nervous system have the power to kill that they may also engender and cure disease. This malevolent potency makes psychotherapy a benevolent possibility in practice, and no wise physician ignores it.

[9] Dr. Geo. M. Beard forced the general recognition of this functional morbid state of the nervous system by the profession, though some physicians of eminence yet dispute it.

[10] But the question of the parasitic origin of this disease was left *sub judice* at the last International Congress at Rome, at the close of the most interesting and learned discussion ever held upon the subject. Pio-Foa, the referee's, advocacy of the parasiticism of cancer being ably contested by Cuzin, Duply and Cornil. Pio-Foa, supported by Morpurgo, of Turin, maintaining that these parasites are encapsuled protoplasmic bodies within or without the nucleus of the cancer cell, similar to the descriptions of Clarke, Sondakeritch, Walker and others, resembling the spores of protozoa or malaria hematozoa, and are common to all cancers of glandular degeneration.

The peripheral neoplasms contain small parasites, the deeper, large sporocysts. Mitosis or karyokinesis is absent or scarcely perceptible where the parasites are absent or few. Dr. Shattuck (editor of the *Boston*

NEURODERMATOLOGIC ADVANCE.

Mr. Malcolm Morris, in his presidential address before the Harveian Society of London, reviewing the progress recently made in dermatology, after noting the fact that we now recognize the precise microbic agents which produce lupus, scrofuloderma, impetigo, leprosy and glanders, and speaking of the "new light" which experimental pathology has thrown on the nature of disease processes and the factors concerned in their production in the skin as in other organs, says: "Almost the only distinct evidence of progress apart from local treatment to which I can point, is the fuller recognition which has been arrived at of the influence of the nervous system in the production of skin affections. . . . The knowledge of the intimate pathologic connection between the nervous system and the skin gives the key to the successful treatment of many cases which defy all local measures." —(*British Medical Journal*, Jan 27, 1894.)

The same light has recently dawned on gynecology and every department of medical practice. We are approaching an era when the whole patient is to be treated, no more only a part or organ solely, and neurology will have a paramount place in general clinical medicine, notwithstanding the recognized and merited advances of bacteriology in pathogenesis.

CERTAIN HEART AFFECTIONS PROCEED FROM THE BRAIN.

What is true of the influence of the nervous system over the stomach in dyspepsia, and the lungs in the pneumonia of influenza, is also true of its influence in the production of certain diseases of the heart. They come from states of the brain, and here again has medicine in its work for the world's welfare, through physiologic research, faced the prejudices of a frowning world against the so-called cruelties of vivisection.

Though the heart of a frog removed from the body will pulsate for hours, if fed with blood or blood serum, and will continue to beat even when divided into sections except at its apex, and even this will beat if tied to the end of a tube and fed under pressure, its conditions of nutrition in vertebrates are determined directly by the nervous supply of the organs and indirectly by the blood (Mills), and the influence of the cardiac nerves becomes more pronounced as we ascend the animal scale, and in the heart of a frog there are ganglion cells, in the sinus venosus, in the auricles and ventricles (ganglia of Ludwig, Remak and Bidder). They are also in the warm-blooded animals, dogs, sheep, etc.[11]

When the heart is severed from the central nervous system by section of the vagi nerves, or destruction of the vagus center takes place by traumatism or disease, profound changes in the heart's structure ensue; this points to central trophic influence through the vagi and to the often central nervous origin of heart disease. The regularity of the heart's rhythm from and strengthening of its beat through vagus stimulation and central stimulation, as by certain volatile and internal stimulants, is suggestive.

We are now able to understand how many disorders of the heart are coincident in their inception with occasions of fright and worry and anguish, sudden accesses of extreme ire, disappointment, prolonged enforced vigilance and other brain strains. These, as Mills tersely says, point to influences of a central origin as greatly affecting the life processes of this organ.

Czermack, pressing a bony tumor in his neck against the vagus nerve, and Hermann and Col. Townsend repeatedly suspending the heart's beats at will (the latter once too often, for he died from his final experiment), also prove the central and vagus nerve influence over the heart. Nervous influences certainly play no small part in the causation and modification of the heart, and with Mills we would "extend such a view to all parts of the body," especially in man. The source of the heart's diseases is often in the brain and other parts of the nervous system, and so is the source of many other diseases for which only the organ displaying the functional disorder and the blood which nourishes it are treated, whereas we should more often treat the whole man, nervous system and all, but the nervous system especially, if we would be most successful.

Now, therefore, in a newer, broader, truer sense than ever before, do we recognize the monism of man. Not in the sense of the philosophical schools, but in a psycho-neuro-physical sense in our survey of his physiopathology. In estimating the causes, concomitants and sequences of his diseases, we consider the whole man in his psycho-neuro-physical relations. As the "medulla oblongata is functionally the ruler of vegetative life," so it governs and influences many diseases, as the psychical and psychic centers of the cortex influence it and the centers below it, as the recto genito-urinary centers of the cord, etc.

As we recognize psychic influence over our physiologic life, over physical and mental habits, so must we come to acknowledge it more generally in our dealings with disease. The physiologic law that habit in the psychical life develops a tendency to recurrence, is also exemplified in the disposition of certain diseases to recur and the inter-relation between muscular and mental tonus suggest the importance of maintaining the psychical tonus in the treatment of all diseases, and the successful therapeutis of hypnotism proves it in many.

As it is difficult to believe in force existing not in

Medical and Surgical Journal, the first journal to report these facts from the Eleventh International Congress) in commenting on this latter fact, says: "This shows that they (the parasites) live, but in tissues whose vitality is low."

In this memorable discussion the following facts were opposed by Prof. Cornil and others to the statements of Pio-Foa and his adherents: Cancer exists in many modified cell-formations and has many nuclei resembling parasites. He asserts that Pio-Foa's parasites are metamorphosed nuclei resulting from morbid karyokinesis; that "there are found also in cancer, degenerated cells whose protoplasm stains red, and which contain in place of nuclei granules, filaments or masses of nuclein, representing the different forms of indirect division, without the occurrence of achromatic filaments or of clear space around the divided nuclein. These are cell degenerations arrested in one of the phases of indirect division of the nuclei. Cornil remarked that even migrating leucocytes interposed between cancer cells had been mistaken for parasites, especially when they had retrograded and had broken up into fragments of nuclein."—(*Boston Medical and Surgical Journal.*)

And a yet stronger criticism of the parasitic origin of cancer is the failure of inoculation experiments to generally produce cancerous reaction, as Dr. Shattuck observes.

But even successful inoculations only bring us back to that other well-attested fact, the necessity of an adaptable soil and the absence of organic resistance, which we have placed in the neural regulation and normal inhibition of vital cerebro-spinal centers.

[11] So that while conceding spontaneous muscle cell pressure and protoplasmic contractility, we know that in certain cases cardiac contractility is modified by medulla and vagus stimulation, to the degree of arrest, slowing, enfeeblement or intermittency.

When the vagus influence is altogether inhibited, the heart's action is increased in force and frequency, while section of both vagi leads to histologic alteration and fatty degeneration. The sea turtle's heart has been suspended through vagus stimulation for six hours, causing its death.

The heart dilates with or without blood during vagus arrests from vagus section, drug impression or electric excitation.

The heart may be reflexly inhibited by gastric and abdominal reflex irritation, flatulent dyspepsia, the Klopfersucht of Goltz, etc.

If one or both vagi are intact, stimulation of the medulla arrests the heart.

The conclusion of a cardio-inhibitory and accelerator center in the medulla, which influences the heart through the vagus, is the obvious teaching of physiology.

contact with matter and without matter existing on which force can display itself, so it is difficult to conceive of the existence of disease in the human body without an influencing or influenced, *i. e.*, disturbed, nervous force.

Henry Maudsley has likened the physiologic life of the cerebro-spinal centers to the mutual inter-related and subordinated movements of the companies, battalions and brigades of an army under command of the higher ganglion cells of the headquarters in the brain, and mental disease to mutiny and rebellion. Huxley has likened the body to "a machine of the nature of an army, not that of a watch or of a hydraulic apparatus. Of this army each cell is a soldier, an organ, a brigade, the central nervous system headquarters and field telegraph, the alimentary and circulatory system the commissariat. Losses are made good by recruits born in the camp, and the life of the individual is a campaign conducted successfully for a number of years, but with certain defeat in the end." Each tissue under the trophic influence of neural communication with its appropriate nervous headquarters conducts its own repairs, *i. e.*, replenishes its own forces. When proper physiologic conditions, including neural connections, are maintained, each tissue in the animal economy correlates its own proper life force. Destroy a trophic center and the part it innervates atrophies; sever a motor nerve and the muscle it supplies is paralyzed; cut a sentient nerve and no power of our art will restore sensibility over that channel that does not reunite or reproduce the nerve. Our aim in the practice of medicine, then, should be to save the nervous system, to conserve neural integrity and force in relation to all parts of the organism suffering under the depressing influences and destroying tendencies of disease.

This should be our aim always, whether we are enabled to make a satisfactory local diagnosis or not, for if we succeed in saving the nervous system absolutely, we save the man, for it is only after disease makes its final resistless inroads here that our patient dies.

HEMOPHILIA AND THE VASOMOTOR SYSTEM.

The neuropathic source of hemophilia in the vasomotor system is more probable than any asserted dyscrasia of the blood, and cholera is so largely a condition of nervous prostration in its symptomatic expression, that if we treat it on this theory, keeping the patient absolutely recumbent and give him copious hot water drinks and enemata, we are more apt to save our patients by this than by any other one plan. Of course, the comma bacilli should be searched out at the same time, with our hot drinks and colon clysters, and destroyed so far as may be practicable, but it is the damage done to the nerve centers that we wish to guard against in this disease till the collapse stage passes, the bacilli are destroyed and reaction comes on. Cold colon douches are likewise of some benefit. I think the water does the work and not the soap in Elmer Lee's plan of treatment, which I uphold on the physiologic principle that the abdominal ganglionic centers and by eccentric impression the spinal nervous system is favorably impressed by his method, while such bacilli as the water can reach are washed out of the intestinal tract, but these are not the most of them.

To divest ourselves of undue skepticism in regard to the influence of the nervous system in the development of what we are accustomed to call disease, but which is often the sensible pathologic product of a morbid process, we should recur often to the physiologic possibilities of the mechanisms of neural control over the arteriole system and of sensation and motion.[12]

BODY TEMPERATURE AND FEVER DEPENDENT ON THE CONDITIONS OF THE NERVOUS SYSTEM.

That remarkable phenomenon, the uniformity of the temperature of the human body at all latitudes and in all seasons, is due to the regulating adjustment of the circulation, perspiration, etc., to environment through the nervous system, and when temperature is disturbed it is due to irritation, mechanical, chemical or toxic, of the nervous system as in traumatic violence, microbic, septic or drug disturbances.

It must by this time be apparent from what we have already said that the intimate physiologic relations between the nervous and the vascular and glandular systems justify these pathologic inferences and confirm the clinical facts.

"The nervous system has so close an alliance with the functional activity of the secretory and excretory glands of the body that emotional disturbances, according to their character, act as depressants or excitants of the functional life of these organs. Some of the more common of these effects are every-day familiar facts, as when the flow of tears is excited by grief, or the secretion of saliva and gastric juice by the smell of food." And it is believed that, "in the same manner as the superficial glands are easily influenced, so, in all probability, are the blood-making or ductless glands [13] regulated and controlled by the organic nervous system.

THE NERVOUS SYSTEM AND THE LIVER.

The influence of the nervous system over the liver was believed in by the ancients who, mistaking coincidence for sequence, attributed melancholia to atrabilis. Murchison asserts a well-observed fact that the secretion of bile is interfered with by prolonged mental anxiety, worry and incessant mental exertion, and that sanguification and blood changes in which the liver takes part often result from mental causes.

I think we need no longer doubt this or indeed any possibility to neural influence when we see pernicious anemia follow degenerations of the spinal cord, and

[12] See Brown-Séquard, for instance, producing hemorrhage into the auricles of guinea pigs by section and irritation of the restiform bodies in the medulla and flushing the neck and face by section of the cervical sympathetic! In this we have the explanation of hematoma auris and cerebral hyperemic states.

It is through the nervous system that we may understand how the hair turns in melancholia and may thicken in chronic mania or dementia, of the less distressed and more stupid and inactive forms, how its color may turn from dark to white and back again to dark, with the access and recoveries of recurrent insanity how it may gloss and dry, erect or flatten, be lost and regained under mental states, and how the teeth may decay, the bones and nails grow brittle and the skin harsh from the same cause and how from neuritis, the nails transform and the limbs waste as well as fail in sensibility and mobility, besides the eczematous, pigmentary and horny changes of the skin from nerve injuries.

[13] Dr. A. D. Rockwell, in a paper in the New York Medical Journal, Dec. 10, 1892, maintaining the nervous origin of jaundice, said: "He had had occasion to see and treat a considerable number of cases of jaundice dependent upon a great variety of causes, and he had been impressed with the frequent occurrence of cases due to deranged innervation, interfering with the normal metamorphosis of bile. Acute atrophy, in which the secreting cells were rapidly disintegrated and the functions of the organ arrested, appeared to him in many instances to have a purely nervous origin; and very often the first symptoms of the disease occurred immediately after a severe fright or an outburst of passion in a person previously healthy. An impression made upon the brain appeared to be reflected to the liver and to derange its nutrition. Even cancer of the liver appeared sometimes to result from the functional derangement induced in the first instance by mental trouble. So this condition appears to us."

progressive muscular atrophy and anemia follow cerebro-spinal concussions.

If the mind has such potency how careful should physicians be of their demeanor or speech before patients. How guarded as to prognosis. And the surgeon, how careful should he be as to the undue and inopportune display of his operative armamentaria. With these facts in view the propriety of large medical and surgical wards where the sufferings and death of one patient may be readily known to the others in the ward is questionable. Other obvious considerations needless to mention here are suggested in this connection.

These neural connections, direct and indirect, between centers of the brain and the circulation, the viscera and the secretions reveal the physiologic basis of all forms of psychotherapy, of faith cures, mind cures and modern miracles, of the principles of which those who perform them are usually ignorant; also, of hypnotism and its therapeutic results.[14]

LEUKEMIA AS A NEURATROPHIC BLOOD DISEASE.

Leukemia is another and most remarkable condition which may result from profound nervous exhaustion or shock or from malarial neuratrophia, and shows how the blood may change through nerve influence as cretinism and pachydermic cachexias show the relationship of thyroid and nervous degeneration and as thyroid extirpation also proves.

THE RATTLESNAKE POISON FIRST A DEADLY NERVOUS SHOCK.

If the remarkable blood cell changes of this disease may originate in morbid neural impression, it would seem unnecessary to go further for proofs. But the poison of the rattlesnake and other toxic substances may kill through immediately fatal shock without detectable lesion, though grave structual changes follow, especially in the destruction of the blood's fibrin and later putrefaction, in the case of crotalus poisoning, if the patient survive any considerable length of time.[15]

The nervous system is the supreme ruler in the organism. When disease enters it is weakened; when death takes place, it is dethroned. The germs of malaria, tubercle, cholera, typhoid, tetanus, etc., or the living virus of any fever, make no fatal inroads until they break down and destroy centers of neural control and resistance.

Whatever view we may take of bacilli, bacteria or cocci which our glass may reveal to us in the damaged organism, whether we regard them as carrion about a carcass, rats forsaking a sinking ship, thieving, destroying, or scavenger parasites, one thing is certain, viz., disease becomes manifest only after the mechanisms of neural sensation, emotion, ideation or control reveal it, for as I have elsewhere said, the nervous system is the central executive and universal sentinel system of the organism. It governs and legislates for the physiologic body, exercising, moving, restraining, regulating or inhibitory power over organic processes in health and in disease. It has its subordinate tributary and sustaining forces in the glandular, vascular, osseous and other systems. It commands, governs and regulates them and they influence it, as the citizens and subordinate officials of the State may influence, and even govern the chief executive or the king.

Raynaud's disease, with its local asphyxia and symmetrical gangrene of the extremities, though its cause may be uric acid, as Haig ("Uric Acid in Causation of Disease," 2nd edition, page 201) maintains, is manifest to us, as Raynaud believed, through spasmodic contraction of the capillaries, as the gangrene of ergotism is.

Haig contends that the uricacidemia of gout and rheumatism "contracts the arterioles and produces high arterial tension," and that glycosuria is alternative of, and contemporaneous with gout, Ord maintaining that the congestion of the liver is due to high arterial tension, while Pavy, according to Haig, credits diabetes "to a vasomotor paralysis of the chylopoetic circulation, which allows arterial blood to be supplied to the liver in place of venous." (*British Medical Journal*, 1883, pages 863 to 866.)

Haig concedes that the hepatic congestion dependent on the state of the vasomotors develops the saccharine diabetes, thinks the uric acid causes that, but attempts no explanation except a dietary one, of the uric acid in the blood.

If I had the time to write a book on this occasion, I think I could show the nervous system to be primarily at fault in the uric acid diathesis and that migraine, epilepsy, morbus brightii, diabetes and melancholia, which attend upon the chronically gouty and rheumatic and alternate with these states, are varying neuropathic states with uricacidemia, albuminuria and sacchemia as their sequences. But this would be profitless. The practical clinical and therapeutic lesson is to correct both the abnormal blood and the faulty nervous states.

The contracted arterioles which raise the tension in the arterial system and diminish the circulation through the organs and tissues of the body need remedying, as well as the uricacidemia, the "heteroalbuminemia, albuminuria, etc.," and the deficient circulation and the deficient metabolism of organs and the disordered assimilation, as well as diet; for some persons may eat any kind of food and have neither gout nor rheumatism, nor diabetes, nor Bright's disease, so long as the governing nervous system maintains the physiologic equilibrium and sustains and secures it against pathogenic forces from without and within.

A change in the weather or a certain exposure sends one man to bed with rheumatism, another with pneumonia and a third comes down with remittent or intermittent fever or phthisis. We say uric acid in the first case, pneumococci in the second, malaria in the third and tubercle bacilli in the fourth.

But why do these morbific forces now more than any other time come so opportunely and seize upon their prey?

We say it is because the vitality is lowered and the organic resistance is lessened. What is that vitality, that organic resistance which permits one man to

[14] The wise physician combines chemistry and a scientific *materia medica* with honest and hopeful mental impression, establishing in the patient where he can and is justifiable by the clinical facts without deception, a buoyant psychotherapeusis in the patient himself. The lengthened visage, the hopeless foreboding, the dismal and solemn aspect and funereal demeanor on the part of the physician are not only out of place and unjust to the patient, but are bad therapeutics.

[15] How speedily the symptoms of this poison follow, if death be not instantaneous; the cry of terror, the giddiness, the syncope, the vomiting, the prostration, the rapid, irregular, imperceptible pulse, the sunken eye, the swollen face and body, the jaundiced, cold, clammy, vesicled skin, the delirium, sleeplessness, torpor, coma, involuntary intestinal and vesical discharges, tremors, convulsion and death? First the nervous shock and then the blood disorganization and organic dissolution.

Drysdale examined the cases immediately fatal with the best of lenses and found no lesion. The nervous system was directly stricken, and life, of which the cerebro-spinal and ganglionic systems in man are the representatives, ceased. The physiologic barrier wall in the nervous system is broken and disease invades.

brave an atmospheric or climatic environment with impunity from disease, in which another falls a certain victim? What is it that permits one man to eat everything without being made dyspeptic, while another can swallow scarcely anything without suffering the gastric distress of indigestion? We say one has a weak stomach, but if we take into account the whole man, we find it is the brain of the dyspeptic rather than his organs of digestion, that has been always punished by its owner's imprudent and reckless habits, though the stomach too may have been abused. We get a similar answer in regard to the remote causation of determining factors of disease of many other organs. We have invented, for evasive answer, certain elucidating terms, as idiosyncrasy, diathesis, morbid proclivity, inherent organic tendencies, etc., and we make many special explanations, like the little fibs the school-boy tells to extenuate a folly, each leading to some other and bigger fib, until he finally realizes that honesty is the best policy and then owns up.

My answer has already been intimated. I can not on this occasion weary you with further detail in elucidation.

I say only in conclusion, to forestall certain criticism, that, though the primal potency of the nervous system resides in the sarcode, much of its potentiality in the highest and most complex animal life, seems to have passed in process of evolution from protoplasm to nerve centers and the most there is of man is his nervous system. In this system resides, in highly evoluted form, spontaneous and reflex motion, sensation and the governing influences of assimilation and reproduction. What should we not expect of such an organism impressing and impressed by disease.

This brief survey of a broad subject brings us across the century, twenty years before the one now soon to close had begun, to the immortal dictum of Cullen, the truth of which the progress of medico-scientific research in clinical medicine now confirms: "*Quantam ego quidem video motus morbosi fere omnes a motibus in systemate nervorum ita pendent, ut morbi fere omnes quodammodo Nervosi dici queant.*"

And now in the sunlight of advancing science and of the approaching twentieth century, I proclaim that neuriatry and the practice of general medicine are practically one.

The practice of medicine is rapidly becoming one of neurologic methods, of neuriatry and psychiatry, and the best neurologist, all other attainments being equal, must of necessity make the best general practitioner. What Lord Chesterfield said of a Christian gentleman, I would paraphrase and say of the neurologist, He is the highest style of physician; and of medicine as a whole, with Hippocrates, It is of all arts the most noble.

Thus much, and yet not a moiety in regard to the relation of the nervous system to disease and practice! Thus much of neurologic progress relative to general medicine. Obviously we can not now enter into the marvelous advances and wondrous resources of modern medicine. In the pages of a thousand volumes and the works of a thousand modern hospitals her glorious record is partly made for the welfare of man, as the nineteenth century recedes into history. But there she stands in her grace and grandeur, the peer of all professions! Ever faithfully by the side of man from the cradle to the grave, in the hour of his saddest need, mindless of home or creed, she bends with pitying substantial aid over his suffering and prostrate form and lends strength to his weakness.

Handmaiden of sweet charity and exemplar of the golden rule, she unshackled the lunatic and brought him from his dark and dreary dungeon into light and liberty, while theology was yet calling him demon or devil-possessed, and she now extends her helping hand to the inebriate, while the world yet condemns him and largely withholds its sympathy. She has likewise extended her protecting charity to the epileptic, the hysteric, the victim of chorea or St. Vitus' dance and the so-called creatures of obsession.

She has influenced courts to modify the former harshness of their ruling towards certain classes, and caused them to recognize disease and degeneracy of brain in extenuation of crime, thus tempering justice with mercy towards the organically weak and maimed in brain and mind. Judicial theories of what should constitute insanity and allied conditions exempting from responsibility to law, have given way to clinical fact ascertained through psychologic expert testimony, and the "knowledge of right and wrong" test of mental aberration has, in consequence, ceased to be the sole criterion of responsibility in questions of insanity before the law.

THE TREATMENT OF INEBRIETY.

America was the first country, the great Rush was the first physician to recommend the "establishment of a hospital in every city and town in the United States for the exclusive reception of hard drinkers," and to regard the drink habit as a disease and advise the blending of medication with religious and moral suasion. And how many regular hospitals, assisted by our State laws, are saving the inebriate from that destruction from which neither his own will, nor moral suasion nor any other influence could rescue him. Yet no monument at the nation's capital bears testimony of the people's gratitude to this great physician and signer of the Declaration, and surgeon of the Revolutionary Army. I can not help this digression when I reflect upon this nation's long neglected debt of gratitude. I repeat the plea I made last year: Benjamin Rush's name is immortal, whether his memory is preserved in monumental bronze or not, but the Government owes his memory, his country and the world, this debt; and every consideration of delicacy, and of decency and of justice to its meritorious dead, and of patriotism, demands its honorable discharge. I have elsewhere discussed this subject *in extenso*. *Vide*, "Treatment of Inebriety," etc., in Bibliography.

This is the fruit of our friendship for the unfortunate lunatic, and in American courts the product of ripened seed planted in the field of forensic psychiatry by that eminent and immortal American medico-jurist, Dr. Isaac Ray, of Philadelphia, whose great work, the "Jurisprudence of Insanity," was the beginning of a memorable era in medico-legal progress, and gave American psychiatry a distinguished standing before the courts of the country and of the world. In this classical American work, the disease of brain and change of character criterion received their clearest elucidation after Andrew Combe, and since the decease of this great American alienist, that other and congenital form of mental disease, paranoia, has received clear elucidation and distinc-

tive differentiation through the contributions of Kiernan, Spitzka, McLain Hamilton, Mann, and other American writers following the treatises of Erb and others abroad.

The hospitals for the insane which made the names of Pinol, the Tukes, the Chiarugis and later alienists immortal, among them our own Kirkbride and Tyler, have been followed by homes and schools and hospitals for the feeble-minded, in connection with which Edouard Seguin, of America, has an undying place in the philanthropic heart of the world, along with that of Froebel and Howe, in Germany, from whom Seguin got the inspirational inceptive idea and patience of training and improving the mental evolution of these unfortunate defectives, and American surgery, thanks to Dr. Wm. Fuller, of Grand Rapids, Mich., who first suggested (in the face of the old world's sneers) a possible operative remedy for the relief of certain of these defectives, the feasibility and value of which has lately been acknowledged abroad and demonstrated at home. Linear craniotomy has proven its right to a trial. It will not relieve microcephalic or porencephalic idiocy, but in other forms of arrested brain development through premature contraction of the cranial vault, this procedure has made it possible for the brain to develop, the speechless to speak and the convulsive to cease their spasm, just as other forms of craniotomy have done for pressure, aphasia and epilepsia.[16] This devoutly-to-be-wished consummation will be hastened through general use for cerebro-pathic investigation and description of the marvelous piece of neurologic mechanism which I now show you as the ingenious handiwork of an American anatomist, not yet so widely known to fame as he deserves to be, Dr. J. P. Fuller, of Grand Rapids, Mich. In this unique contrivance the brain has been represented in thirty-seven transverse sections, hinged together in natural form and shape, with the superimposed superficial psychomotor centers. The downward paths of conduction to the cord, and the entire brain in its median and spherical and interior aspects are separately and relatively shown.[17]

The saving triumphs of brain surgery in other directions of prudent neurology are now simply marvelous, but more marvelous far than this wondrous work of salvage will be the saving of the brain and nervous system from the necessity of surgery, the mark at which general medicine and neurologic medicine are now aiming, and a goal much nearer reached now, than in the past.

Should men contest the claim of medicine to being the greatest of the world's benefactions, we reply: The germ theory of disease causation alone, with its applied antagonisms, hygiene, antisepsis, perfect cleanliness and resistive and tolerant inoculations, has done, is doing and is yet destined to do, more for the physical welfare and salvation of mankind, than all other causes of man's comfort, conceived in the mind and heart of man.

But for our applied teachings of hygiene, the world having its population in the last one hundred years nearly trebled, and civilized life having become so complex and degenerating in populous centers, the race would now be on the road to extinction.

The world is beginning to clean up, and mankind to recognize the necessity of cleanliness. We are promoting this antisepsis on our part in giving to man the purified air of heaven and the waters of the earth freed from pollution; the air and water and the spirit in man to conceive and apply measures for their purification, together with the uncontaminated and uncontaminable sunlight, are the direct gifts of God. We have taught mankind the value of cleanliness, the life-saving and prolonging value of physical and moral purity, and putting our precepts in practice, when permitted, we put back pestilence and turn death and decadence from individuals and peoples. We are not gods of the air, but we walk the earth as watchful pitying gods in the service of man, saving him from pestilences that walk in darkness, and of which he knows nothing save in their destructiveness, until medicine enlightens him and overthrows the destroyer of his health and strength and attendant happiness. But for the interposing monitions of medicine, man would not to-day be awakened to the danger of making a beverage of the attenuated liquid pollutions of the soil and falling ill all unconsciously with typhoid and other maladies, as in the days of the not far distant past; reverently submitting to the mysterious ways of the all-wise Providence, as did his remoter ancestors, attributing all affliction to the wrath of offended deities. So little a thing as the timely boiling and filtration of all drinking water will confer a boon on mankind, in warding off disease, which can not be computed. The application of the discovery of Jenner is as nothing in comparison—not even the great disease-averting and life-saving discoveries of Pasteur could be so potent.

As "the sun smiles on the earth, and the exuberant earth returns that smile in flowers," so do the silent ministrations of our noble profession fall upon a recipient world, which blossoms in healthful response. Our ministrations of medical charity, like those of mercy, drop

> "Like the gentle rain
> Upon the place beneath
> Blessing him that gives
> And him that takes."

Noble followers of a glorious vocation, grand and beautiful profession! Sublimest and best of the callings of men, save that alone of the Great Physician of Galilee, whose example encourages us and whose voice approves.

Besides the ten thousand hygienic resources for warding off disease and promoting the world's comfort, which it unconsciously and without thanks to our beneficent profession daily employs, medicine

[16] Dr. J. F. Binney, of my own State, has this year reported in the Annals of Surgery, for April, one such successful operation, and Paschill reported in the International Medical Magazine another last year; both being followed by marked mental improvements. Each of these gentlemen likewise report other cases without satisfactory results. Frank, of Chicago, has paved the way, I think, to the ultimate success of cerebral ventricular puncture.

[17] Dr. Fuller says in his preface to the great demonstrative work of his: When a medical student, the author of this work experienced great difficulty in understanding the anatomy of the brain from plates and descriptions in books, and recognizing the fact that, compared with the number of students, the opportunity of studying the anatomy from the natural brain is sure, he has carefully prepared a series of casts from actual dissections and casts, which he hopes will materially aid the teacher, and render the task of the student much easier.

The dissections presented in this specimen are made from photographs taken of sections of a carefully prepared brain, cut one-sixteenth of an inch apart and perpendicular to a line drawn from the external process to the occiput.

Familiarity with these plates and their situation in the brain will enable the necroscopist to recognize, at a glance, any section that he has made of the natural brain, and to select the proper plate from a book of similar plates which accompanies the preparation, upon which to describe any lesion found, and which he can attach to his report of a post-mortem examination, so that others also familiar with the position of the plates comprising this series will be able to locate the lesion described.

In this way a more ready understanding will be effected between neurologists, and it is hoped that, by this means, together with the careful observations of symptoms, the functions of many parts of the nervous system now obscure, may be more clearly understood.

This preparation is also invaluable to those interested in the surgery of the brain, showing as it does, the relation of the external marking, with deeper structure beneath.

now mitigates and annuls pain through analgesics and anesthetics (local and general) and contributes to human comfort under the most painful circumstances to a degree far beyond that of any other physical benefaction to mankind, Medicine has minimized and trained the lightning so that it ministers to the relief of human misery and the cure of disease. She has made of it a search-light for the human body, an assuager of pain, a producer of sleep and a destroyer of destruction.

The boon of hypnosis and narcosis under the many methods for its induction known to our art, saving the insomniac from the precipice of mental overthrow or neural failure in the lower centers of the cerebro-spinal axis or peripheral nervous system; the power of antisepsis, and through it the wonderful procedures and possibilities of modern surgery, and this *fin de siecle* hygiene; the many and marvelous therapeutic and hygienic advances in promoting the phagocytosis of the toxic bacteria; the destruction of the ptomaines, and in other directions of relief and cure; the discoveries of pathology, histology, medical chemistry, biology, neurology, psychology, psychiatry; and the contributions of surgery, gynecology, ophthalmology, otology, laryngology, proctology and the other specialties of study and work, have made the latter decades of the present century the most memorable in resourceful discovery in the history of medicine or in the history of mankind.

Intravenous injections of immune animal blood serum, promise much for the cure of phthisis and other chronic contagious diseases, and there appears good therapeutic promise for the coming years in mycodermic medication.

These grand achievements give us hope and promise of even grander contributions to the weal of mankind before the close of this final decennium of nineteen hundred.

Medicine has made the Pontine Marshes of ancient Rome, the jungles of darkest Africa, comparatively safe to the traveler, and the valleys of the Nile and Mississippi are no longer menaces to health. Quinin, eucalyptus, picrate of ammonia and tasteless Fowler's solution, have augmented human happiness and spread the commerce of civilized nations beyond computation. The world applauds its Livingstons and Stanleys, yet omits its meed of praise to those who have made their discoveries and the fruition of them a possibility.

Thus we see medicine ever advances towards its final goal, the health and consequent happiness of mankind. Thus we see, though with contracted view only, from this cursory survey, how much the past few years have done in the direction of medical advance. Thus we see that this great profession, the uplifter, the friend and benefactor of mankind, though the jest betimes of the world's great wits, continues its too-little appreciated benefactions. Its votaries, forsaking or ignoring common routes to glory for paths of duty, have gone on ameliorating human misery and conserving and saving limb and health and life, and through health, the welfare of the State; deserving, but not receiving, the conqueror's word of praise, marking the march of medicine with blessings on mankind, and entitled to the world's gratitude far beyond what the world has ever recognized. In the fierce contentions of mind with mind and strain of modern business and professional life, and in man's contests with nature and battle with the elements, medicine preserves and fortifies man's organism for the fierce fray, that he may fight on and conquer success, prosperity and happiness for himself, for his family and for the commonwealth.

When will a gratefully appreciative nation erect suitable monuments to our workers, our warriors, our martyrs in the glorious cause of human happiness and human progress? for without health man is nothing. In the struggle for the survival of the fittest he falls in the fight for existence, and becomes the victim rather than the vanquisher of his environment, and nations do likewise.

The world owes medicine much. When will it ever repay even half the debt? It will be when "isms" and "pathies" in practice are dead; when the now vanishing days of sectarian theories shall have passed away forever; when a unified profession practicing in the faith and teachings of true science shall have its legitimate combined influence over all the people. It will be when students are taught a sufficient length of time (five years or more) in our medical colleges, to enable them to master the principles of medical science and the precepts of medical practice, and to practically appreciate the ethics of their profession. It will pay back the debt in tributes of honor and glory and adulation, and in monuments of marble and bronze, when human progress shall have reached that high stage of evolution when there will be more renown for him who saves life in the name of charity than for him who takes it in the name of national glory; more glory for him who builds up, than for him who tears down the fabric of human happiness. In that on-coming day of human enlightenment the true physician will be esteemed above the warrior. Nations will give him merited places of honor in ministry, in cabinet and council, and on tented and battalioned fields. Then it must needs come that the physician will assert and secure his peerage among the people. History will then give medicine an illumed and illustrious niche in her temples of enduring fame, and the glorious deeds of her worthy sons will be justly immortalized in poet's song. America will then render long-neglected memorial justice to her great medical benefactors. Bronze and marble forms of her great dead doctors, who have dared and done more than warrior or statesman for the public weal, will adorn her public parks and grace her public halls. The enlightened citizen standing beneath the dome of the nation's capitol, as he looks upon the immortal names there inscribed, will see those of America's great physicians written alongside of her other philanthropists, her jurists and her presidents. American philanthropists will read their names there inscribed "in letters of gold and in pictures of silver," and revere their memories as the patriot now reveres the memories of Washington, of Jefferson, of Franklin and of Patrick Henry. The names and remembrance of Benjamin Rush, of Ephraim McDowell, of Marion-Sims, of Beaumont, of Crawford and Jackson, of Bowditch, Agnew, Gross, Wells, Long, Paul Eve, Gaston, Marcy, Weir, Mitchell, Valentine Mott, and their good work for the weal of the world will be as immortal as those of our Clays, our Websters and our Bentons. Every patriot will revere them, because they have contributed to conserve the health of the public, realizing that in the good health of a people is their happiness, their physical, political, mental and moral power, and to be without

this power is to be as pigmies among the nations, puny in prowess and pitiable in all that makes man or nation great and good.

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ORIGINAL ARTICLES

VACCINATION.

Read before the New York State Medical Association, Fifth District Branch.

BY HENRY H. MORTON, M.D.

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It would almost seem to be a work of supererogation at the present day, with the accumulated experience of the past hundred years, to speak of the protection which vaccination has afforded the human race against smallpox.

There are a few people in the community, however, who object to availing themselves of its advantages; the ignorant and uneducated who are willing to suffer the dangers to themselves of sickness and death from smallpox and the certainty of spreading the disease to an indefinite number of others, in order to avoid the slight inconvenience, for a few days, occasioned by the possibility of a sore arm; and the limited number of persons, with some degree of education who, for the sake of a little cheap notoriety, or because of an inborn mental twist, a sort of internal strabismus, which keeps them from looking fairly and straight upon any subject which is presented before them, oppose vaccination upon the premises of falsified statistics, misquotations and untrue statements, backed up and rounded out by a choice flow of denunciation and general abuse.

We can form but a faint idea of the destructiveness of smallpox before the year 1800 when vaccination began to be employed, by referring to history.

Macaulay says: "Smallpox was always present, filling the church yards with corpses, leaving on those whose lives it spared the hideous traces of its power, for two-thirds of the pauper blind in England were made so by this cause."

Another historian states that it was the exception to see a face in England that was not pitted and scarred by smallpox.

In Iceland it is said to have destroyed 18,000 persons out of a population of about 50,000 during the eighteenth epidemic which occurred in 1797.

In Greenland, in 1734, when the first epidemic occurred, two-thirds of the inhabitants died.

In Germany, before the time of vaccination, 66 deaths in every 1,000 were the result of smallpox.

It was no respecter of position in life, or high station, and a long list of royal personages is to be found who died from it.

The same condition of affairs is to be found to-day in some semi-civilized countries where vaccination is not practiced. A missionary, writing from Turkey in Asia, states that one scarcely finds two persons out of a hundred who remain free from smallpox.

It has been claimed by its opponents that the diminution in the number of cases of smallpox since the introduction of vaccination has been due to the improvement in sanitary conditions.

Our experience shows that persons in the better walks of life are just as liable to be attacked when exposed to the disease, unless protected by vaccination, as the poor who live in filthy and crowded tenement houses. It is true that smallpox spreads more rapidly among tenement houses than among private dwellings, because of the neglect of precautions of vaccination, the close contact and communication of the inhabitants, the want of ventilation of the rooms allowing the poison to become concentrated, and the fact that medical attendance is often not sought for until days after the disease has made its appearance.

An objection to using human virus, and one which is well founded, is that syphilis may be conveyed through it. The contents of the vaccine vesicle do not contain the syphilitic poison and are harmless, but as the poison is in the blood of a syphilitic individual it is very difficult to avoid conveying some blood corpuscles when vaccinating from a crust and so producing syphilis. This danger does not exist with animal virus.

It has been claimed that vaccination may be the medium of infecting persons with tuberculosis, but although not definitely proven it is highly probable that tubercle bacilli do not exist in the vaccine lymph. In order to take all precautions to avoid the possibility of danger from this source, the managers of the vaccine farms have calves carefully inspected by competent veterinarians, to make certain that they are free from tuberculosis before inoculating them with vaccinia. The calves are subsequently killed and then examined, and if any evidences of tuberculosis are found the lymph is destroyed.

To avoid the danger of inoculation with septic germs, attention to cleanliness should be observed in the operation. The ivory point upon which the dried vaccine lymph is sent out, or a clean cambric needle which can be thrown away after each vaccination is better than a scalpel or scarifier which has to be cleaned. No dressing should be applied while the vesicle is present, as it tends to soften it and bring about a premature discharge of the contents.

The English vaccination law requires every child to be vaccinated before reaching the age of three months, and experience shows that infants under this age have less trouble from fever or sore arms than older ones.

Let us glance for a moment at some of the results of the protective power of vaccination.

In 1799 and 1801 about seventy-five hundred persons were vaccinated at the smallpox hospital in London and in order to test the value of Dr. Jenner's discovery about half of these were subsequently inoculated with smallpox matter, and in none of them did smallpox produce any effect. Such an experiment would not be justified to-day, but at that time inoculation with smallpox matter was in vogue as an everyday practice, as it was found that the cases of smallpox so induced were milder than those acquired in the ordinary way by contact.

In referring to tabulated statistics, we find that in Copenhagen the fatality from smallpox is but one-eleventh part of what it was before vaccination was introduced; in Sweden about one-thirteenth; in Berlin and parts of Austria one-twentieth; in Westphalia one twenty-fifth.

The German army, where vaccination and re-vaccination are compulsory, and which numbered a million men during the war with France in 1870, lost only 286 men with smallpox, while the French army lost several thousand by that disease.

In Dr. Welch's statistical report of 5,000 cases of smallpox treated in Philadelphia, the death rate among the unvaccinated was 58 per cent. and among the vaccinated only 16 per cent. In 1884 to 1892, out of 1,201 persons employed on the hospital ships for smallpox, of Great Britain, only six or ½ per cent. contracted smallpox and all of those attacked recovered.

But dry statistics do not appeal to one as strongly as personal experience. Time and again, during the recent epidemic, I have seen the unvaccinated members of a family taken sick and those recently vaccinated escape. I recall the case of an Italian family, living in Hudson Avenue, which I lately saw, consisting of father, mother and four children, who had a relative with a child 3 years old staying with them. This child was attacked with smallpox, was not attended by any physician and recovered after a three weeks' illness. The other members of the family had been vaccinated recently and all escaped, although exposed during the entire time. A colored woman living on the opposite side of the hall who had not been vaccinated since childhood contracted the disease.

In another instance a person living in Fiftieth Street was attacked with the smallpox in January, was removed to the hospital and the premises were fumigated. Vaccinations were made in that and the adjoining houses at the same time; a few days later a child was born in the next house, who after fourteen days was attacked with smallpox and died. The party wall between the houses was shown to be pervious by the sulphur fumes produced by fumigation coming through into the next house where the child was subsequently born. The poison had no doubt passed through in the same way, being kept active in the walls by the warmth derived from the stoves. All the other persons in the house had been vaccinated and no one else took the disease.

Again I have frequently seen instances of persons who had been exposed to the smallpox and were promptly vaccinated, with the effect of entirely preventing smallpox from developing, or modifying it so much that it was but a mild affection.

It is a question of the utmost importance as to how long the protective power of a vaccination lasts. Many of the laity consider that they are protected through a lifetime by one vaccination in infancy. This is a fatal mistake and most of the cases of smallpox which I have seen in adults had one or more vaccination scars on their arms.

Vaccination is an absolute protection against smallpox for a certain length of time, but as years go by the protective power disappears, and if the individual acquires smallpox it may be the unmodified form resulting in death, or if less time has elapsed since the last vaccination, the case may be one of varioloid.

The term of immunity will vary with the individual, some cases being protected until puberty by a vaccination done in infancy and others having a vaccination take every few years. It may be laid down as a safe rule that a person should be vaccinated whenever exposed to smallpox or at least once in five years, as a precaution, and that the vaccination must take in order to be a protection.

An illustrative case occurred in my experience a

few weeks ago. A man of 35 years of age, in comfortable circumstances had been vaccinated several times, the last four years ago but unsuccessfully. He was exposed to smallpox and developed the disease, having it in a very mild form, about a dozen pustules in all on the body. The protective effect of his former vaccinations had not entirely disappeared at the time he was vaccinated last, but was sufficient to prevent the vaccination from taking. Four years later, however, the effect had still further diminished thus allowing him to acquire smallpox, although in a very mild form.

Dr. Welch's statistics show that of the children who were admitted to the smallpox hospital in Philadelphia under one year of age, seventy-eight were unvaccinated and fifty-seven died; two had been vaccinated and had exceedingly mild cases.

From the ages of 1 to 7 years:
404 were unvaccinated and 208 died . . . 51 per cent.
35 were vaccinated in infancy and 2 died, 5 per cent.
From the ages of 7 to 14:
222 were unvaccinated, 71 died . . . . . 31 per cent.
137 were vaccinated in infancy, 13 died . . 9 per cent.
From 14 years and upward:
1,038 were unvaccinated, 681 died . . . . 65 per cent.
2,967 were vaccinated in infancy, 495 died, 16 per cent.

The deductions to be drawn from these tables are that the liability to acquire smallpox and to die from it increases as years elapse after the vaccination.

In the recent epidemic of smallpox which occurred in Leicester, England, there were 281 cases. Of these, 126 were unvaccinated and 13 died; while 155 had been vaccinated in infancy but not re-vaccinated—of these none died. The chairman of the Sanitary Committee makes the striking statement that no case of a vaccinated child under 10 years of age had been treated for smallpox.

The committee appointed by the Epidemiological Society to examine the statistics in regard to nurses in attendance on cases of smallpox, reported that out of 1,500 such attendances, 43 contracted smallpox and not one of these 43 had been re-vaccinated.

Dr. Collie says during the epidemic of 1871, 110 persons were engaged in the Homerton Fever Hospital, in attendance on the smallpox sick—all these with two exceptions were re-vaccinated and all but these two escaped smallpox.

The experience of 1876–77 was of the same kind, all re-vaccinated attendants having escaped, while the only one who had not been re-vaccinated took the disease and died of it.

So in the epidemic of 1881, of 90 nurses and other attendants of the Atlas Hospital ship for smallpox, the only person attacked was a housemaid who had not been re-vaccinated.

Dr. Edwards states that of 734 nurses in the Metropolitan Board Hospitals, 79 had had smallpox previous to their entrance and they escaped. Six hundred and forty-five were re-vaccinated on entrance and not one took smallpox; ten escaped re-vaccination and the whole ten took smallpox.

Dr. Welch states that in a service of twenty-three years in the Philadelphia smallpox hospital, not one person employed in the hospital who was properly re-vaccinated before entering on duty has taken smallpox.

A careful study of the literature of vaccination, combined with a personal experience of its protective power, demonstrates conclusively the correctness of Dr. Jenner's statement, namely, that if every person were vaccinated and re-vaccinated as their acquired immunity disappeared, smallpox would be stamped from the face of the earth.

In case of an epidemic existing or threatened, any one is liable to contract the disease and infect an indefinite number of others with smallpox, so that due regard to the rights of the community as a body, would necessitate the vaccination or re-vaccination of every person who may become a menace to the public health and safety, irrespective of his wishes in the matter.

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PREVENTION OF PERTUSSIS.

Read before the Ohio State Medical Society at Zanesville, May, 1894.

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As far back as I have been able to compare diseases, I have wondered why whooping cough was allowed to be considered by the laity as it is now, when the profession knows so much about it. There are many parents who, for want of the proper advice, have said that they want their children to have this or that disease, believing "it will not go so hard with them if they have it while young." They are not taught that adultness is a fair immunity from childish, infectious diseases, and that it is no more necessary for children to have chickenpox, mumps, measles, whooping cough, etc., than it is for them to have smallpox, diphtheria, pneumonia or any other disease.

Again, they are not impressed with the fact that whooping cough is one of the most contagious diseases, and one among the most fatal diseases to which children are heir. Too often do we meet pertussis on the streets, in the car, in the boat, in the pew, in the schools, and its victims in the hearse.

In the *Rules and Regulations of the Ohio State Board of Health* adopted June 30, 1893, we find Rule 1 says: "No person suffering with diphtheria, scarlet fever, smallpox, measles, whooping cough, or other dangerous communicable disease, shall be admitted into any public, parochial, or private school or college or Sunday-school, or shall enter any assemblage or railway car, street car, vessel or steamer or other public conveyance." Is this rule obeyed or enforced or even attempted to be, in cases of whooping cough or measles? No; at least in many cases it is not.

Rule 4, says: "It shall be the duty of every physician called to attend a person sick or suspected to be sick with cholera, yellow fever, smallpox, diphtheria, scarlet fever, measles, whooping cough, typhoid fever, typhus fever, within twelve hours thereafter, to report the name and residence of such person, to the Board of Health . . . ." Are these requirements met in cases of measles, whooping cough, typhoid and typhus fevers, which four diseases aggregated 1,725 deaths in Ohio in the year of 1892, 15 more than the first five (cholera, yellow fever, smallpox, diphtheria and scarlet fever)? No; not assuming that whooping cough, measles, etc., are as destruc-

tive as cholera, yellow fever and smallpox, but that while we are intently gazing through the field-glass of quarantine at yonder cannonade of yellow fever and smallpox, the musketry of whooping cough and measles pour in with epidemic volleys in close range, year after year, until the death rate is greater than we suspect.

Rule 5, says: "It shall be the duty of the Board of Health . . . when a case of smallpox, yellow fever, typhus fever, diphtheria, scarlet fever, or measles is reported within its jurisdiction, to at once place . . . in a conspicuous position on the house wherein any of the aforesaid diseases occur, a quarantine card or flag . . . and to prohibit entrance to, or exit from such house . . ." Here, whooping cough, the most highly contagious disease known, except scarlet fever, is not mentioned for placarding. Neither is measles or typhus fever placarded, which the rule requires.

Rule 10, says: "No public or church funeral shall be held in connection with the burial of a person who has died of cholera, smallpox, yellow fever, typhus fever, diphtheria, scarlet fever, measles, or whooping cough, and the body of such person shall not be taken into any church, chapel or other public place." Yet how inexcusably is this good rule disobeyed in the deaths from whooping cough and measles.

The State Board of Health with its local boards has saved untold hundreds of lives; and we advocate the belief that it can save at least a few more lives by acting upon the disease of pertussis more earnestly.

Whooping cough is a malady almost entirely limited to infancy and childhood, and but few escape it because of its great activity of contagium; of the carelessness on the part of the profession; and of the ignorance on the part of the laity. The following information has been gleaned from the *Vital and Nosological Statistics* of Ohio from the year 1889 to 1892 inclusive:

"During these four years, pertussis has caused a little less than 1 per cent. of all deaths; and has caused 26 per cent. of all deaths under 10 years old. And during these four years it has caused 1,197 deaths, while scarlet fever has caused *only* 397 more deaths at the same time. Owing to the unreliable sources of collecting vital statistics by the assessors, the Secretary of our State Board of Health says that at least 40 to 50 per cent. of the deaths of Ohio are not returned. This is perhaps more true in regard to whooping cough than scarlet fever, because of the universal belief in the insignificance of the former. Dolan says whooping cough ranks third in fatal diseases of infancy in England; and causes one-fourth of the annual deaths of children in London. In Ohio the death rate is still higher from the same cause.

Griffith says 120,000 died from this disease in England and Wales in nine years; and 85,000 in Russia in five years—an average of 17,000 deaths per year. Winters says it is thought that whooping cough with its complications and sequelæ is more fatal than either diphtheria or scarlet fever. Starr says that next to scarlatina, whooping cough has the highest mortality of all diseases among children.

Whooping cough *per se* is not dangerous but the high mortality is due, as Dr. Winters has said, to the complications and sequelæ which are said by Goodhart to occur probably in one-third or one-fourth of all cases. There are three general reasons why these complications or sequelæ come on: 1, the younger the infant or child, the more prone, except under three months; and greater are the deaths; 2, children insufficiently clothed and nourished; and children whose vitality is reduced by constitutional disease, or by anti-hygiene; 3, a susceptibility to be seized at the same time with measles, each rendering the other more hazardous.

These complications and sequelæ are: Bronchopneumonia, bronchitis, lobar pneumonia, atelectasis, pleuritis, emphysemia, pneumothorax, tuberculosis, nephritis, heartstrain, pericarditis, dropsy, edemia of glottis, membranous croup, aphasia, paralysis, hemiplagia, epilepsy, eclampsia, meningitis, cerebral hemorrhage, hemioptysis, epistaxis, aneurism, sub-conjunctival hemorrhage, conjunctival ecchymosis, emesis, anorexia, enteritis, hernia, rectal prolapsus, blindness, deaf-mutism, lingual ulceration, goitre, eruptive fevers, sclerosis and marasmus; only about forty in all. Fortunately, many of these complications and sequelæ are uncommon or perhaps rare, and some too often accidental; but unfortunately, the most serious are the most common, *i.e.*, broncho-pneumonia. It would be no extravagance to presume that the mortality from pertussis would be still higher if the death reports were more completely and properly reported and classified. It is a peculiar fact that when a secondary affection attacks, the primary disease abates or is lost sight of entirely for a greater or less time. Therefore, a child in several years hence may die from phthisis,heartstrain, etc., whose origin was whooping cough, which was not so reported and recorded, and the real cause of death is, consequently, unknown. Allow me to say here that we, as physicians, do ask for more complete vital statistics in Ohio.

The prevention of pertussis is the avoidance of the cause; and the cause is an active contagium epidemically inclined. If this be true then it is a preventable disease; and if it is a preventable disease, connected with the knowlege of the high mortality and low record, we should censure ourselves for such a condition laid at the door of the medical profession. It seems to me horrifying to let a single life go out that might have been saved by our present knowledge of medical science and art. Any movement that would reduce the mortality to any percentum would be commendable in proportion to the reduction produced.

Whooping cough and measles seem to be considered of no great importance, even by the boards of health, from the fact that no precautions are enforced. Diphtheria, the most dreaded of all diseases of children, caused 383 deaths *less* than did measles and whooping cough; and these two diseases caused 69 per cent. of as many deaths as diphtheria and scarlet fever together. It is the consensus of a few authors and secretaries of State boards of health, with whom I have been communicating on this subject, that quarantining against whooping cough would be beneficial, but from the suffering it would produce they would not like to see a system of house quarantine. Considering the longevity of the attack and the sordid or poor classes which are most likely to suffer from its ravages, quarantining would now be not impossible but impracticable. But we must not compare health and life with trouble or expense, for there is no comparison. What are we to do? 1,

remove to an infectious disease hospital; 2, isolate; 3, teach.

1. A hospital for infectious diseases only, and maintained by the corporation would be the ideal method of prevention of pertussis, but alas! 'tis only a dream; 2, isolation would be more tangible, but would be unsatisfactorily enforced for several reasons. Serious objections were proposed against quarantining smallpox at first, but no one questions that wisdom now. To card the house for whooping cough (and measles) the same as we do for diphtheria and scarlet fever, would be doing little enough towards quarantining. It is uniquely strange that children who have whooping cough or measles, the two most highly contagious diseases, (with very few exceptions), which kill nearly three-fourths as many as the two most dreaded maladies common to children, are permitted to go at liberty on the streets and elsewhere. It is a shame for intelligent Ohio!

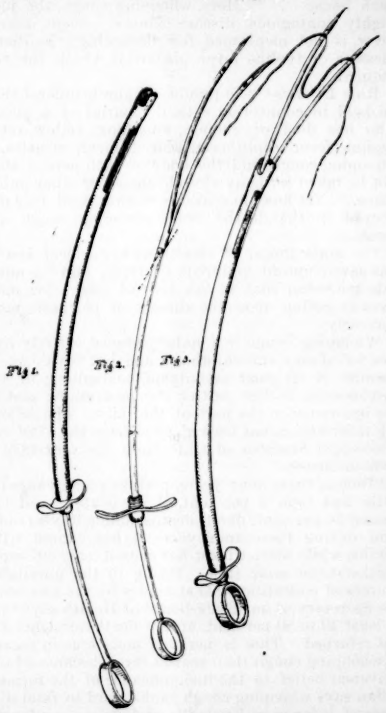
About the only objection to house-carding for whooping cough, are the difficulties of making an early differential diagnosis; also, the irregularity of the course of the disease; also, the contagiousness of pertussis patients which is as long as the patient coughs, but not the same degree as in the paroxysmal stage. Because we can not prevent all the children from this contagium is no reason why we should not attempt to prevent as many as we can. We will then be doing more than we are now doing, and in time will receive our merited reward.

3. Teaching the laity the destruction secondarily caused from whooping cough is our duty much neglected. We should be the people's protectors and be active against everything that would jeopardize their health or life. To have them call our attention to any point of danger or benefit of health, is a served notice of our slothfulness. And this notice has been served on me not a few times during the epidemic of whooping cough just now abated. The laity can be taught to obey restrictions on one disease as well as another; and whooping cough will be no more difficult to restrict than tuberculosis which we hope will soon be under some kind of restrictions. There are people who send their children to school in any condition, for almost the sole purpose of getting rid of them for that time, caring nothing for the danger of their carrying the infection to others. Such parents or guardians should be fined or in some other way punished by the health officer. Again, there are children who for fear of being kept away from school will use deceit in the early part of the disease, thereby exposing others. It would then be necessary for each school teacher to be qualified to act on the prodromic and early diagnostic symptoms of contagious diseases, and prohibit entrance to the school yard until the receipt of a physician's certificate or a personal visit by the teacher at the home.

GASTRO-HYSTERORRHAPHY WITHOUT OPENING THE ABDOMINAL CAVITY.

BY FRITZ BAUM, M.D.
KANSAS CITY, KAN.

Our negative results in treatment of prolapsus uteri and retro-misplacements by pessaries and supporters have proven conclusively that we can never gain our point in supporting the prolapsed uterus from below, and that we must find some means to uplift same from above, and in this way substitute the office of the relaxed round and broad ligaments. For this purpose we have constructed the following instrument, consisting of a hollow tube like a big uterine sound; within this there is a piston-like rod with a handle at the outside and two needles threaded to one thread at the end inside. Now our idea is the following one: Place the patient in Trendelenburg's position, insert this instrument called uterine ventro-fixator into the uterus and after correcting misplacement of same, bring the fundus as high up as possible in direct contact with abdominal wall; then push the rod up until the needles protrude through the skin, unthread needles and draw the piston back, thus removing the needles and withdraw the instrument.



Pull the thread up as high and tight as feasible, then tie a strong knot after having made a little incision through the skin of the abdominal wall to embed the stitch, in this way fixing the uterus to the abdominal wall. The place is then dusted with iodoform and sealed with collodium.

As far as we can see, the first question, which would arise would be the following one: Is there danger of sepsis? We say not, if properly managed.

The vagina should be first well cleansed and packed with antiseptic gauze until rendered aseptic. Then on the day of the operation the uterus should be curetted and washed out with a strong antiseptic solution and then after perfect boiling of the instru-

ment, needles and thread, we think this danger would be eliminated.

The next question would be, shall we get adhesions by holding the uterus in contact with the abdominal wall in this way? We think we should, because by pulling the uterus up against the abdominal wall, these stitch holes must naturally give a little, perhaps they will even tear some; this will set up some local inflammatory action which will result in adhesions, which "report of cases" will prove, if the uterus is brought in *firm* contact with the abdominal wall. We may either leave this stitch in there permanently or may remove it after two to three weeks.

The only contra-indication for this operation, as far as we can see, would be adhesions of the intestines to the fundus uteri or portions of the abdominal wall, or firm adhesions of ovaries and tubes to the back, or presence of pus about the uterus and appendages. The interference with a large bladder can be easily avoided by keeping a sound in it during the operation.

Whoever has operated or seen the operation, will be convinced that the danger of wounding the intestines is almost eliminated because the uterus can be so plainly felt through the abdominal wall and manipulated in such a manner that all intervening tissues can positively be excluded.

Case 1.—Miss M. D., age 19. Retroversion with strong adhesions, after severe fall four years ago; since that time frequent painful urination, backache and difficult menstruation. I made the first operation at Bethany Hospital, Kansas City, Kan., April 21, under assistance of Drs. J. D. Griffith and S. I. Harrison, and R. A. Roberts, of Kansas City. Uninterrupted recovery; highest temperature recorded was 99.4. Patient had no pain nor inconvenience whatever and was discharged after three weeks' stay, (two weeks in bed) in the Hospital, with her uterus firmly adherent to abdominal wall hardly within the reach of the finger in vagina.

Case 2.—Mrs. F. O., age 37. Three children, youngest 5 years old; after last confinement, prolapsus uteri with pertaining complaints; operated April 22; highest temperature 99.7; very little pain; remained in bed thirteen days; discharged after three weeks; uterus in proper place. Uterine supporter was fitted to be worn about one or two months.

Case 3.—Mrs. R. T., age 26. After tedious labor case and forceps delivery, patient complained of backache, headache, and frequent painful urination. Examination showed retroflexio uteri. Operation April 24; temperature remained normal; slight pains over region of stitch. Contrary to my custom I did not embed the stitch in abdominal tissue but severed it the seventh day, in order to test adhesions which proved strong enough to make the uterus adhere to the abdominal wall. Uterine supporter was fitted and patient was discharged seventeen days after operation completely cured.

Case 4.—Mrs. A. K., age 43. Prolapsus uteri of nine years' standing. Operated April 25; clipped stitch May 2; found uterus strongly adherent and fitted uterine supporter. Discharged May 19 completely relieved.

Case 5.—Miss F. L., age 18 years. Kicked by horse in the abdomen about one year ago; since that time dysmenorrhea, headache, backache, fatigue feeling, etc. Diagnosis, retroflexio uteri. Operated April 26. No elevation of temperature; had a circumscribed peritonitis around the stitch as large two silver dollars. Made uninterrupted recovery and was discharged two weeks after the operation.

Case 6.—Mrs. A. B., age 25. Gave birth to twins, forceps delivery, two years ago. Diagnosis, retroflexio uteri. Was unable to do her own housework because of backache, headache, and constant desire to urinate. Operated April 29; highest temperature 99; very little pain. Did not embed stitch but cut it twelve days after operation; uterus remained in place. Uterine supporter fitted and patient was discharged twenty days after operation completely relieved.

Case 7.—Mrs. L. M., age 36. After fall from a wagon two years ago had adhesive retroversio uteri; difficult menstruation with constant backache and headache. Operated May 1; no rise of temperature; was discharged relieved, within two weeks after operation.

Case 8.—Mrs. J. K., age 26. Had three children. According to her own report had miscarriage two years ago; after that puerperal fever. Examination shows retroverted uterus almost immovable. Operation May 4; greatest difficulty in destroying adhesions. Rise of temperature second day to 102.2; third 101; the following day 100.3, but found in changing the vaginal tampon that uterus had dropped back as I expected.

There were three more cases operated upon which gave complete satisfaction though they are still under treatment, therefore reports later.

THE SURGICAL TREATMENT OF GRANULAR CONJUNCTIVITIS.

BY J. A. BACH, M.D.

PROFESSOR OF DISEASES OF THE EYE AND EAR, WISCONSIN COLLEGE OF PHYSICIANS AND SURGEONS, MILWAUKEE, WIS.

The important feature in all forms of treatment of granulations of the eye-lids, whether surgical or otherwise, is to remove pathologic elements and prevent further invasion of the same with their destructive consequences, with the least possible harm to the conjunctiva and lids. Without proper treatment we know that granulations will in many cases ruin eyes, and in others cause serious lesions, either by inducing ulcerative processes or, in the more favorable cases, by producing cicatricial contractions and deformities of the lids. In fact, a large percentage of cases as they come for treatment, have already suffered in some way or other in the mobility or form of the eye-lids. These complications by the additional irritation they induce, further aggravate the unpleasant symptoms and not infrequently produce spasmodic contractions of the muscles of the lids, forming a serious obstacle to the successful treatment of the case. Therefore, often one of the first considerations in the surgical treatment is to remove such complications by the proper operation. A canthotomy in cases where this is indicated, through the powerful contractions of the orbicularis muscles, will give us the most valuable aid as a preliminary step to further treatment.

Other abnormal conditions as to mobility or shape of the eye-lids can frequently be corrected with great advantage before proceeding far in the treatment proper of the case before us.

The surgical treatment to be of any advantage in the cure of granulated eye-lids must be of a conservative nature and must seek, as far as possible, to *protect* rather than *destroy* invaded elements of the conjunctiva and deeper tissues. We must therefore place as foremost of all surgical measures, the expression rather than excision of the pathologic elements in all cases where this can be done. By this means we may not succeed completely in removing all the granulations, but we will succeed in suitable cases if the operation is thoroughly done, as it ought to be, to remove most of them and at the same time so stimulate absorption and physiologic tissue changes as to lead to a rapid cure of the condition, whether supplemented by further local applications or not. It is not to be forgotten that the ordinary remedies are applied, not with the idea of directly destroying the granulations but for the purpose of inducing that state of local hyperemia which most favors absorption, so that if we can directly, by expression remove these deposits, we gain valuable

time besides producing the same results physiologically, that topical applications produce.

Expression of granulations can be used in all cases, but is more especially adapted to the first stages of the disease, before the deeper tissues are much involved. Where severe inflammatory symptoms usher in the disease, it is well to allay such inflammations before applying surgical measures of any kind.

A number of instruments have been devised for the purpose of expression, the most suitable of which are Knapp's roller forceps and Noyes' forceps. Another instrument that can be used with great advantage is the ordinary Desmearre's entropion lid forceps, and which in many cases I prefer to other means. However, it is not the particular instrument that one may use in this performance; it is the completeness with which the operation is done that goes to cure our case. Frequently, expression can be successfully done by the use of the finger nails. Friction, as applied by means of a brush or similar means sufficiently strong to tear the superficial capillaries and soft friable granular masses, but without destroying the normal tissue fibers has been extensively used in some quarters with great satisfaction. Grattage or scratching by means of a stiff brush or by a small metal rake, is a similar means but rather more severe, and ought to be used with care and discrimination. In the first stages of the disease it might do considerable harm by tearing and lacerating the conjunctiva and therefore it is applicable only where we have exuberant and fleshy granulations covering the whole lids; where the conjunctiva is so completely infiltrated and covered as not to be recognizable. Expression in such cases is frequently not sufficient, as we have here to deal largely with hyperplasia of tissue elements. The results obtained by friction or grattage as indicated, will by tearing the superficial capillaries, as well as the softer pathologic elements, cause local depletion and greatly improve circulation and absorption. It is surprising how quickly these thick fleshy lids can be reduced in a few days by this means, where it would take months by means of the ordinary topical stimulation. The good results of this procedure can be augmented by the additional use of antiseptics and astringents. In the more advanced stages of the disease, where deep deposits have taken place especially at and in the fold of transmission, the venous circulation often becomes very sluggish owing to mechanical obstruction. Absorption under such circumstances is deficient and practically at a standstill. Neither expression nor grattage is fully capable of removing this condition of affairs. Thorough massage has produced good results, although this is not always sufficient. Through the thickening and stretching produced, the conjunctiva becomes redundant and the careful excision of the fold of transmission has been practiced in such cases with decidedly satisfactory results.

A two-fold indication is met in this way:

In the first place we remove a large amount of infiltrated, and objectionable tissue, and in the second place we destroy the over dilated and inactive blood vessels and improve the local circulation and nutrition.

It has been held that by means of excision of the fold, disagreeable contractions are liable to occur. This, however, is not the case if the excision is done in the proper cases and properly executed. It is desirable to excise as little as possible of the conjunctiva, and as this membrane is quite redundant in these cases no harm can come from this. The main object is to excise the subconjunctival tissue deep in the fold.

Galezowski is an ardent advocate of excision of the fold of transmission, and does this as a routine practice in all advanced cases. In his experience he has had no unpleasant results following the operation. Special instruments have been devised for the purpose of excision, among which may be mentioned Galezowski's forceps.

Cauterization by the actual cautery has been practiced to a limited extent and, in my opinion, can not be considered a rational measure. It certainly offers no advantages over excision or grattage, besides being much more liable to leave hard and irregular cicatrices. The principle of electrolysis which has been practiced by different men with good results, would seem more conservative and therefore more applicable. I have had no experience with this method, nor do I believe that it can be made to answer the purpose as well as other means at our command. The operation of scarification of flabby granulations is in my opinion objectionable, as by its use we will necessarily sever and greatly injure the conjunctival covering without offering any advantage which can not better be achieved by grattage. The use of massage, although not strictly a surgical measure is one of great advantage in conjunction with the various other procedures. In cases where the disease has run its course and has left behind large atrophic areas of the conjunctiva, or where this has occurred through severe caustic or surgical treatment, transplantation of conjunctiva of the rabbit to cover these defects, might suggest itself. By thoroughly removing the overlying tissues, it would seem simple enough to transplant healthy conjunctiva and give the globe a more acceptable protection.

INTRALIGAMENTOUS AND RETROPERITONEAL TUMORS OF THE UTERUS AND ITS ADNEXÆ.

Abstract of a paper read at the meeting of the American Gynecological Association, at Washington, D. C., May 29, 1894.

BY WILLIAM H. WATHEN, M.D.

LOUISVILLE, KY.

While paroöphoron cysts and retroperitoneal myomata of the uterus and its muscular processes have nothing in common in their etiology, I would include both kind of tumors, because the technique of the operation for their successful removal is practically identical. With few exceptions, cysts that unfold the layers of the broad ligament and burrow deep into the pelvis and retroperitoneal connective tissue, often developing nearly continuity in relation to other structures, probably arise from remnants of the mesonephros in the paroöphoron. Either the cystic or solid tumor may separate the peritoneum anteriorly and lie in front of it attached to the bladder, fascia and muscles of the abdominal wall, the separation sometimes being so extensive that it may be possible to reach the tumor and enucleate it through a median incision between the pubes and umbilicus without wounding the peritoneum. The separation, however, is usually from the posterior pelvic and abdominal walls; the tumor having passed beneath Douglas' sac unfolds the mesorectum, meso-

colon or mesentery of the small intestine; or, passing under the appendix, the cecum or the ascending colon, lies between them and the abdominal walls. The blood vessels that cause the most hemorrhage in enucleation are confined mainly to the capsule, and these vessels are sometimes huge sinuses, and especially is this true when the tumor has unfolded the mesentery of the rectum, the colon or the intestine.

No one should attempt the removal of intraligamentous or retroperitoneal tumors who is not familiar with the normal relations of every one of the pelvic and abdominal viscera and the relations that these tumors may sustain to surrounding tissues, otherwise he is at sea without a compass, and the immediate and subsequent results of his work will be bad. He should know that these tumors are mainly supplied with blood from the ovarian and uterine arteries, and that successful enucleation depends largely upon a correct ligation of these vessels.

The dangers of the operation which should be anticipated are:

1. Hemorrhage from separated adhesions, from the capsule of the tumor, from the denuded surface of a myoma, from injury to the spermatic and uterine arteries, the iliac arteries and veins, and inferior vena cava.

2. Wounding the ureters, the bladder and the intestines.

The causes of death are hemorrhage, shock and sepsis.

The results of the operation depend mainly upon controlling hemorrhage and successful enucleation. To prevent injury to a ureter that may be in front of the tumor it is best to incise the capsule and introduce ligatures *parallel* to the abdominal wound; in incising the capsule avoid large vessels. Hemorrhage will be greatly lessened by careful enucleation close to the cyst wall or the substance of the myoma, thus pushing the vessels in the capsule and in the connective tissue away from the tumor without wounding them. If the spermatic arteries have previously been ligated near the uterus and near the pelvic walls, the enucleation may sometimes be completed without wounding a vessel large enough to cause troublesome hemorrhage—in fact, it may be possible in some cases, by enucleating close to the tumor and the uterus, to perform total hysterectomy without ligating the uterine arteries, they being pushed aside and left in the pelvis uninjured. Great care must be observed in separating the tumor from the bladder and the intestines, otherwise these organs may be wounded or the coats so injured that sloughing may result, and when the enucleation has reached the pre-vertebral space careful dissections must be made, always hugging the tumor, avoiding the ureters or deep-seated vessels.

As gum tubing can not be used in many of these cases, hemorrhage may be controlled by forceps, separate ligation, ligation *en masse*, or a continuous suture; and hemorrhage from the substance of a soft cavernous myoma may be controlled by firm gauze pressure, or ligation *en masse*, the ligature being introduced deep under the bleeding vessels with a long curved needle. Forceps should be so shaped as to be readily applied to any part of the separated capsule, and the surface of the blades should be comparatively smooth and the edges so rounded as not to cause hemorrhage by cutting through the thin and fragile walls of the vessels. I here present two forceps of my own device that well illustrate this point. Adhesions should be separated, if possible, between forceps or ligatures. The cyst should be tapped before enucleation is begun, and when this is done the caliber of the vessels in the capsule contracts.

If hysterectomy is necessary, total extirpation is preferable, for we can not get sero-serous union over the uterine stump, and unless this can be done the cervix ought to be removed. If possible it is best to ligate the uterine arteries outside of the ureter before they give off branches that supply the upper part of the vagina and cervix, otherwise ligate them close to the cervix to prevent injury to the ureters. The patient should be in the Trendelenburg position, so that the different structures and their relations may be seen as we proceed. There is no fixed opinion or uniform practice in the treatment of the sac cavity. It is drained through the vagina; through the abominal walls, with or without suturing the capsule to the abdominal wall; or it is not drained at all. If hemostasis has been nearly perfect and the operation aseptic, drainage is not necessary, and then in total extirpation the vaginal vault should be closed by interrupted sutures.

MEDICAL EXPERTS.

BY WILLIAM S. FORREST, ESQ.
OF THE CHICAGO BAR, CHICAGO.

[Response to a toast at the annual banquet of the Alumni of Rush Medical College, May, 1894.

Justice can not be administered in our civil or criminal courts without the aid of medical science. In the detection of crime, in the demonstration of innocence, in determining the probable cause, nature and extent of personal injuries, in shedding light upon the validity of wills, in ascertaining the existence and degree of mental impairment, the courts are compelled to lean upon the special research, observation and experience of the physician.

Originally, in England the medical expert aided the court by reporting to him his conclusions somewhat as is now done by a Master in Chancery. In those days he was selected by the judge and not examined by counsel. That system failed, and in its place arose the present system, which requires the expert to respond to a subpœna, if his reasonable charges are tendered him, and to submit, under oath, to examination and cross-examination. There is nothing, however, in the law or practice to-day that prevents a trial judge, of his own motion, from selecting and compelling any physician to give expert testimony as to the matters in issue in any case, when his testimony is relevant, if the court tenders him his reasonable fees. A fund to be provided by the county board in any county is all that is required to invest the courts of that county with full power to introduce in every case the testimony of that physician, whom the presiding judge may deem the most competent, within his jurisdiction, to elucidate the controverted medical question.

Of late there have been frequent complaints of medical expert testimony. Most of these complaints, in the judgment of lawyers, are based on prejudice and the want of full and accurate information. Sometimes they are prompted by the bias and the enthusiasm that flow from the zeal of partisanship.

American journalists have ceased to be impartial

reporters and reviewers of legal proceedings. They are advocates in a forum in which no effective reply can be made by persons who are not editors or proprietors of newspapers, and where usually the contentions of one party are maintained by argument, evidence, rumor and suspicion, while the contentions of his opponent are assailed by the truth, in so far as the truth is serviceable, but when it fails to hit the mark by appeal to prejudice, by insinuation, by caricature, and even by the coinage of the imagination. Their tone indicates that they know the whole truth. The greater number of their readers, especially those whose literature is exclusively the newspaper and the magazine, assume their expressed degree of certainty as to the actual truth and, when "gravelled for lack of matter" in ordinary conversation, earnestly state and warmly discuss their opinions concerning the last or the approaching trial of a great case. This agitation in the press and discussion in society lead nearly the whole body of the people to prejudge the controverted points in all celebrated causes, civil and criminal, and to cling with pertinacity to their prejudgments, regardless of the evidence, until the final order is entered and the actors in the legal drama pass from the stage. Hence arises a long train of mischiefs, not only to the medical witnesses, but also to all persons in any way connected with modern jurisprudence.

Some of these complaints, I have said are groundless; others, however, and those not commonly noticed, are fully warranted by the experience of men acquainted with litigation.

Although medical expertism is not what it ought to be, it is by no means what it is represented to be. Yet, it must be conceded that it has fallen from its former estate in popular opinion. The prevailing notion as to its character is due, in my judgment, to impertinent and improper cross-examination, to improper rulings by the trial judges as to the competency of certain questions and as to the scope of the cross-examination, and to the imperfect, if not incorrect, reports of medical testimony in the daily newspapers, as well as to the shortcomings of the experts themselves.

Within the past year, a physician who was called to answer a hypothetical question as to the nature and effect of certain wounds, was cross-examined for several hours on psychology, neurology, chemistry, anatomy, physiology and histology. Objection to the latitude of the cross-examination was promptly overruled. If such an examination is permissible, then any industrious lawyer who has been instructed by a learned coach, can make the average medical expert in any case appear ridiculous. If such a method of interrogation is admissible, then no medical expert can pass creditably through the ordeal of cross-examination in any trial unless he is prepared to answer questions, not only on the subject on which he offers himself as an expert and what is fairly involved in it, but also on the whole science of medicine with all its ramifications.

Willingly admitting that the bar, the judiciary and journalism are in this way partly responsible for the want of public confidence in medical expert testimony, still I claim that its chief cause will be found in such intellectual deficiencies of the average medical expert as are disclosed by the legitimate cross-examination daily conducted in our courts. These intellectual deficiencies are: 1, unfamiliarity with the minutiæ of the particular subject on which he is called to give testimony; 2, his lack of reasoning power; 3, his apparent incapacity to test the opinions, which he seeks to maintain, by the cardinal rule of all scientific investigation, namely, that no theory is proved, unless it is consistent with all the genuine facts and excludes, to the degree of certainty required, all other theories.

The daily practice of the physician, which requires him to do the best he can in view of the symptoms disclosed, results in habits of mind which, if not corrected by earnest endeavor, unfit him for scientific investigation and scientific statement, and, therefore render him incapable of presenting his opinions in a logical form and of maintaining them in a contest with a thoroughly equipped lawyer, who has a clear advantage, because he is the questioner, and is fresh from a special study of the subject.

In the sick chamber, not to appear to know and to act accordingly, is failure. In a court of law, not to give an opinion unless you are certain that it is sustained by the facts presented and the teachings of medical science, is success.

Assuming, then, that the cause of the prevailing opinion of medical expertism has been correctly stated, what is the remedy?

A board of medical experts to be appointed by the judges of our courts of record is often proposed.

In the nature of things this scheme can be a remedy for so much of the complaint only as is caused by the partiality towards the defense of the experts retained by it. If such partiality be the cause or the chief cause of the complaint, then the remedy suggested is appropriate; and whenever the defendant is poor and without influence will be decidedly effective.

On the other hand, if our analysis is correct, that remedy will be merely sweetened water given to cure a deep-seated difficulty.

If it were possible to organize and maintain a board or college of experts, whose knowledge and skill embrace and completely cover in all its parts the whole field of medicine and its accompanying sciences, and who are endued with that form of moral courage which inspires a man to tell the truth in absolute disregard of public opinion, when it is his duty to do so, I do not know of any measure within the range of possible legislation, that would be of more enduring benefit to the administration of criminal justice, considered from the point of view of the defense as well as the prosecution.

I insist, however, that there is not resident in Illinois any responsible public authority that is competent to select such a board, and that, if there were such an authority, politics would prevent the election of the most competent physicians.

Besides, the science of medicine to-day is too varied to be represented by any number of physicians possible to be gotten together in any board that can be created and supported at the public expense.

It may be replied that we ought not to expect perfection. True. Do not forget, however, that under the powers with which the judiciary is now invested, if your county board will appropriate the requisite funds, any trial judge may compel any physician to testify, upon whom a subpœna can be served within the jurisdiction of the court. For all practical purposes, therefore, more efficient service can be had in

the present state of the law than would be rendered by the proposed board of medical experts, provided the judges exercise their powers and the county board makes a sufficient appropriation. We have, in effect, now a board of medical experts which consists of the entire medical profession of Cook County. Why limit it by creating a legal board?

Furthermore, such a board, if created in Cook County, would furnish testimony that would be more imperfect in the respects in which medical expertism is now imperfect than the system which at present obtains.

Gentlemen who favor the creation of such a board admit that our governors and State boards of health are not competent to select it, but they claim that our judges are.

I can not agree with them, yet I yield to no man in my respect for the ability, impartiality and uprightness of our local judiciary.

No set of men are competent to select a board of medical experts with the proper qualifications, unless they are acquainted with the leading physicians, able justly to estimate their proficiencies, sufficiently prescient of the future to know the medical questions that will arise during the term of office of the members, and strong enough to resist and overcome the pressure of politicians and the insistence of personal friendship.

In urging that our judges are incompetent to perform the duties under consideration, I merely insist that they are human and have the usual limitations of good lawyers, who have assiduously devoted themselves to the practice of their profession, and are now dependent for their official existence upon votes cast in political conventions. They, like the rest of mankind, ought not to be led into great temptations.

Suppose our judges were empowered to organize such a board, in what proportion would they divide them among the different schools of medicine? Who would finally be appointed? Physicians named by politicians. How do we know? By experience. Our judges now name the South Park commissioners and justices of the peace. Do you know of a South Park commissioner or a justice of the peace who does not owe his position to politics? Did not our circuit judges lately divide into two sets respecting the appointment of one of those commissioners, and did not one set refuse to meet and confer with the other, until the seceding set had their way as to the politics of the new appointee?

If our judges were empowered to appoint a board of medical experts, is it not morally certain that no physician would be considered whose application was not supported by political influence? Would not the applicants be so numerous that combinations would be formed among them and their friends? Would not the different nationalities also put in their claims for recognition? And would they not obtain it?

All the past records of the human race teach that the appointing power tends to weaken and corrupt its possessors. Let us not, therefore, attempt to elevate modern expertism by increasing the patronage of our judges. Rather, let us elevate the judiciary by relieving it of the appointing power with which it is now burdened.

Remember, too, that each one of our trial judges constitutes a tribunal that is finally to pass upon the sufficiency as well as the credibility of the expert evidence. The tribunal that is to determine these two questions is not the one that should be permitted to select the witnesses. Every one has an inclination to credit the witness whom he selects.

In Germany there is an official board of experts, but its members are not named by the judges.

Another objection to a board of experts to be appointed by any public authority is, that it would be compelled to decide questions submitted to it in accordance with public clamor, and its members would be more or less controlled by the politicians who secured their appointment.

The common supposition is that persons who hold quasi-judicial positions, elective or appointive, perform their duties in a fearless and impartial manner. This ancient notion ought to be classed with the old superstitions with which the ignorant are silenced, if not convinced and controlled. Our prosecuting officers are intended by the law to be impartial; but what prosecuting officer in this county ever hesitated to avail himself of public opinion in order to obtain a conviction? In so doing have they been always right? Your supreme court has frequently found that they were radically wrong.

Five physicians of this city, distinguished for their learning and integrity, of large experience in treating the insane, and acknowledged to be in the first rank of their profession, within the past year were retained by the prosecution to examine a man indicted for murder whose defense was insanity. They made the examination and, they say, were compelled by the evidence to conclude that he was insane. They so reported to the prosecuting officer, were not called as experts on behalf of the prosecution, and afterwards went upon the witness stand in obedience to a subpœna by the defense and testified that the accused was insane. Had they concluded that he was sane and so testified, they would have been well paid out of the county treasury. As witnesses for the defense they waived compensation, on account of the poverty of the accused, and gave their testimony as experts without fee and without the expectation of any reward, except that which ought to follow the discharge of public duty.

This beautiful act of humanity, this splendid manifestation of manhood has been stigmatized by the press as "treason to the State." And these five physicians are regarded in certain quarters, because of this charge, not as men who served the public well but as physicians who betrayed their trust and basely served a cowardly assassin.

Scientia et humanitas is the motto of your graduating class. Young gentlemen, the story of your generation, when told, will contain no better exemplification of your motto than the conduct of these five physicians.

Suppose these five physicians at the time they gave their testimony constituted the board of medical experts for Cook County and that their term of office expired a few days afterward. Could they have been re-appointed? What pitiless attacks would have been made upon them, and what revenge would be threatened against the judges who should vote for their re-appointment?

Some of the members, not fitted by the kindly offices of their profession to endure a storm of detraction, would seek refuge in withdrawal, or if their term had not expired, in resignation.

Other members would not wish to be re-appointed, because of their distaste for the fierce conflicts inci-

dent to all forms of public life. In their places would appear five medical politicians who would enter upon the duties of their high office with the unexpressed feeling that, in order to avoid the abuse heaped upon their predecessors, it would be necessary for them to formulate their opinions in the next criminal case in accordance with the edicts registered in the columns of the newspapers and echoed by the cries of the populace. Thereafter the tendency would be from silence to evasion, thence to trimming, then acquiescence, and finally abject willingness to let the crowd have its way.

It has ever been so. Now and then the course of events makes necessary the sacrifice of some human being in the courts of law. Jurors and judges have seldom been able to render true verdicts and just judgments on the first trial of those cases that stir deeply the passions of the people. Humane legislators have provided courts of appeal, partly in order that there may be a tribunal with revisory power, distant from the passions and influences to which the trial courts are always subject.

Athens, at the height of her greatness, condemned Socrates as a criminal and put to his lips the cup of hemlock. Even Socrates, the good and wise and pure, was judicially murdered by a jury of his fellow citizens, every one of whom knew him personally. How the jurors were applauded for their verdict as they filed into ecclesia at the first meeting of the citizens convened thereafter. Public opinion had demanded the removal of Socrates and the Athenians honored the men who removed him.

Jesus of Nazareth was put to death in obedience to the shouts of the populace: "Away with him!"

In staid and justice-loving England, Titus Oates and his fellow witnesses supplied the perjured evidence which dragged innocent men to the scaffold, in compliance with the excitement and rage of London Town.

Down in old Salem among the pious and sober-minded Puritans, good mothers confessed in open court that they were witches, and the juries and judges believed their confessions and hanged them. Public opinion had so decreed.

Heads dropped from the guillotine in France, sent thither by tribunals that quailed before the wild mob and the master politicians of the age.

These instances of the sacrifice of human life to public prejudice and popular clamor are taken from the histories of the great nations of the earth, the nations that have given modern civilization its philosophy, its religion, its humanity, its sweetness and light.

Varied were the issues and unlike the accused in these trials. Very different also were the laws, the manners and characters of the people in whose courts the judgments were rendered. But in one essential and supreme aspect they were all exactly alike—in all of them the verdict was determined and dictated by popular fury.

History repeats itself, also, in criminal jurisprudence. What happened then, happens now. The difference is that you and I are too near to the trials that have taken place in our generation to view and discuss them in the manner in which they will be viewed and discussed by posterity.

When there is proposed a measure which may affect the fortunes, the liberties and the lives of great numbers of the citizens, it behooves us to deal with the evil we seek to correct in the light of the experience of mankind. Any change in order to be effective must be made with reference to the directing and dominating forces of the times.

Our age is ruled by newspapers as the feudal age was ruled by the great barons. As our courts and juries are influenced and in great trials intimidated by public clamor, so will any board of experts created by any popular authority, be controlled in the end by the same clamor. Relief may be obtained in the courts of appeal from the errors committed by judges and juries; but there is not any tribunal on earth that can right the wrong done by a board of medical experts, who should yield to the madness of the hour and testify, against their judgments, to that which will tend to convict a man on trial for life or liberty.

Within the past ten years a physician, then connected with the county physician's office, testified in a murder trial, on his direct examination to the theory of the prosecution, and on the cross-examination fully and unequivocally to the theory of the defense. I inquired of him after the trial the cause of this great discrepancy. He replied that his real opinion was stated in his answers on the cross-examination; that before the beginning of the trial he had informed the State's attorney of his opinion, and that that attorney had threatened to ruin him if he gave it in evidence. He then reminded me of the savage attacks on him in the columns of the newspapers that followed his departure from the witness stand, as proof that the State's attorney had attempted to execute his threat.

An effective remedy for the evils of medical expertism in Illinois will not be found in any change or modification of the system by which experts are selected. I care not what the system is, if there be in the community any objectionable experts, of push and energy, these experts will become a part of that system. Force and persistence win in the scramble for office, in spite of all safeguards. What is needed is not a change in the system of selecting experts, but greater ability, skill and knowledge on the part of the average medical expert, and the average medical expert is the average physician.

The only adequate remedy for the evils of medical expertism, in so far as a remedy is required, must come from the coöperation of the legislature, the judiciary, the bar, the medical profession and the editors of our great daily newspapers.

First, then, I suggest that the Legislature enact that a medical expert witness is one who has actual knowledge of the subject on which he is called to testify, derived from clinical experience. No physician, for example, should be accounted a medical expert in cases where insanity is the issue, unless he has actually treated the insane. Under the law at present any physician can qualify as an expert in any civil or criminal case, if he is in practice and acquainted in a general way with the literature of the subject involved in the issue.

The judges should restrict the hypothetical questions to the facts in evidence, except in so far as such questions are permitted in order to test the competency of the expert. The cross-examination should be confined to what is germane to the phase of medical science involved in the case on trial. When such a law is enacted and the judges enforce it and the rules of evidence, as they now exist, the lawyers will

be constrained to do their duty on the trial, and thus they will contribute their part to the restoration of public confidence in medical testimony.

The medical colleges may raise the standard of medical expertism by devoting more time to medical jurisprudence, and by increasing the requirements for admission and graduation.

Rush Medical College has done its duty. Recently it increased the requirements for admission, lengthened the course of study to four years, and extended each year's work one-third.

As to the lack of the power of logical statement and of the capacity to reason in accordance with the method of science which, I have urged, characterizes the medical expert, nothing will supply this except that which advances any man in any profession, whether he be self-made or college-made; application and severe self-discipline.

Finally, our genial and learned editors may render great assistance by not permitting the publication of reports of medical testimony that are so incomplete as to amount (unintentionally, of course) to the suppression of the truth and the suggestion of what is false.

It is not sufficient to administer the laws in a just and even-handed manner. It is indispensable that the people should *believe* that they are so administered.

Such concurrence of effort will enable us to leave the jurisprudence of Illinois in a better condition than we found it, and restore medical expertism to the confidence of the people. Nay, more, it will place the medical expert in a position in our courts closely akin to the sacred relation which the family physician now bears to the American home.

SOCIETY PROCEEDINGS.

Ohio State Medical Society.

The Forty-ninth Annual Meeting of the Ohio State Medical Society, held in Zanesville, Ohio, May 16, 17 and 18, 1894.

(*Continued from page 888*).

RACHIOTOMY FOR INJURIES OF THE SPINE.

by DR. J. C. OLIVER, Cincinnati. The basis of the paper was a case upon which the author had operated fourteen months after the injury. The patient was a young farmer, age 34 years, who was injured by falling from a tree. Complete paraplegia resulted *immediately*. Within two days a bedsore developed over the sacrum, which persisted for eight months. The bladder and rectum were involved. At the time of examination, fourteen months after the injury, there was absolute paraplegia, motor and sensory, and a constant dribbling of urine and rectal apathy. There was a projection over the eighth and ninth dorsal vertebræ. The reflexes were all exaggerated. The legs were not atrophied or contracted. His general condition was excellent. It was decided to thoroughly explore the spinal canal and ascertain the condition of the cord, but no hope of benefit was held out to the patient. The operation was performed Sept. 28, 1893. It was found that the eighth and ninth dorsal vertebræ had been fractured, and the seventh had been twisted to the right, so that a portion of the cord about one-half inch wide had been caught by the bones and was completely disorganized. Aside from a transient improvement in the patient's ability to retain his urine, no benefit occurred.

The question as to operable and inoperable cases was then discussed, and the most favorable time for operating considered. The importance of these fractures and injuries depend entirely upon the amount of injury done to the nervous structures contained within the spinal canal. This class of cases may be compared with fractures of the skull, and such a comparison is legitimate. Hence, operations to accomplish any good results must be undertaken early, before injury to the cord becomes permanent. In injuries from direct violence immediate operation should be advocated. In injuries from indirect violence, operation will very rarely accomplish anything.

SECTION ON PRACTICE OF MEDICINE.

SECOND DAY—MORNING SESSION.

The meeting was called to order at 9:00 A.M. by the Vice-President, Dr. S. L. McCurdy, of Dennison.

The first paper was read by DR. D. N. KINSMAN, Columbus.

STUDIES IN IMMUNITY AND TREATMENT OF A SPECIFIC FEVER, *i. e.*, HOG CHOLERA.

It was a report of special work done on hog cholera, to determine whether or not it could be treated by serum or antitoxines successfully. Cultures in bouillon or blood serum, were sterilized by heat, so as to kill the microbes and leave the toxines free in the fluid. Experiments were made both with the attenuated cultures of the microbe and by the use of the toxines. Before the third or fourth day of the disease the use of the latter secured immunity, the hog being able to withstand an injection of the pure cultures which would kill the unprotected animal.

Discussed by Drs. W. J. Scott, Fackler, Hutchinson, Conn, Beardsley, Lindsley, Spiers, Graham and the author. Dr. Beardsley had used pulverized charcoal and the arsenite of copper with the effect that the disease stopped at once, and the hogs ceased dying. They were given all they wanted of it.

IS THERE A BETTER REMEDY IN CHOLERA?

DR. E. B. FULLERTON, of Columbus. The author recommended the use of sulphate of quinin, and endeavored to show the following:

1. That, as the epidemic of 1892, in Western Europe, has shown the old rate of mortality of about 52 per cent., it may be considered as settled that *all modern remedies for the disease have failed.*

2. That, reasoning by the deductive method, the remedy recommended by the author should be chosen before all others, because it alone may be given in sufficient amounts to effect promptly inhibition, followed by almost coincident disinfection of the intestinal tract.

3. That, although Prof. Koch was the first to establish the degree of the inhibitory powers of quinin sulphate, he did not recommend its use in cholera because he knew it had failed to cure the disease.

4. That the reason it failed to cure the disease is found in the fact that the germ of the disease has its habitat in the human body only in the intestinal tract, and furthermore that quinin sulphate, when given hypodermatically or intravenously, escapes by the kidneys without reaching the germ.

5. That, reasoning by the inductive method, wherever given by the mouth in sufficient doses, in every epidemic from and including that of 1831, to, and including that of 1873, it has accomplished all that may reasonably be expected of any remedy, reducing the mortality in advanced stages of the disease to 14.25 per cent. in Asiatic cholera, exclusive alike of choleraic diarrhea and of collapsed cases, to a bagatelle of 2.5 per cent.

6. That, if the ability to show that a remedy *should* be most effectual in the cure of a disease, and furthermore, that wherever rightly given it always *has been* so effectual, does not constitute an important addition to therapeutic knowledge, there would seem to be no reasoning in therapeutics, or "help in us."

DISCUSSION.

DR. BLEILE thought the author's logic unexceptional and the treatment rational.

DR. GORDON, Georgetown, in 1855 read a paper on cholera, treatment with quinin sulphate and mercury in solution, by the mouth, and has continued this treatment ever since.

DR. FULLERTON—Quinin is the only remedy that stands the practical test.

DR. ROBERT PETER, Canal Dover, read a paper on

THE RATIONALE OF SYSTEMATIC ELIMINATION IN THE TREATMENT OF TYPHOID FEVER.

The most promising eliminative treatment is ideal prophylaxis. To stamp out their causes is the best preventive of diseases. The technique of systematic eliminative treatment of typhoid fever may vary. The most direct methods are: Expulsion of the poison, by purgation alone; conjointly by purgation and irrigation of the bowel; by irrigation of the bowel alone; or, by conjoint purgation, irrigation and baths. Any purgative may be prescribed. A good selec-

tion is podophyllin, which has the advantage of directly increasing the secretion of bile. One-eighth to one-fourth of a grain every six hours may be given, and this will usually insure from four to six stools every twenty-four hours of its use. A more vigorous effect may be secured by the use of the compound podophyllin pill. If the stools are already too frequent, calomel may be given in broken doses, one-eighth to one-fourth of a grain every half hour. This will allay irritation and remove the gases and other toxic intestinal contents, which are causing these frequent irritative but not eliminative stools. Purgation by irrigation of the bowel has only an indirect effect upon the ileum. If a tonic is suggested, quinin may be given in 2 grain doses every three hours, nux vomica in one-quarter grain doses every three hours, and if there is loss of strength there may be administered every four hours the comp. syrup of hypophosphites and strychnin, one twenty-fourth of a grain of the latter to one dram of the former. Abortion of the disease is possible when the treatment is undertaken not later than the fifth day. Purgation does not increase, but actually diminishes the danger of perforation. In the late stages of the disease, irrigations alone are the best form of eliminative treatment. The treatment must be pushed until the disease is eliminated, and it will abort typhoid fever by the ninth or twelfth day, if early begun and effectually carried out. The patient should be allowed to eat anything he may desire. Eliminate the poison and nutrients will be borne well.

DR. JOHN E. WOODBRIDGE, Youngstown, then read a paper on

TYPHOID FEVER.

This was a supplementary report of two cases, and a presentation of charts. The patients were the son and wife of Mr. W. W., and are of special interest because there were cases of typhoid fever with well-marked symptoms on either side of his residence, and because he had previously lost a son and daughter from typhoid fever. Both cases presented absolutely pathognomonic symptoms of typhoid fever. In one case there was nose bleed and delirium, and in both intense headache, tympanites, gurgling in the right iliac fossa, rose spots and bronchial catarrh. Both cases recovered in less than two weeks as a result of the treatment, which consisted of a No. v capsule of the following:

℞. Hydrarg. chlor. mitis	ʒj.
Guaiacol carb	♃vi.
Thymol	♃v.
Menthol	♃j.
Sugar	ʒii.
Eucalyptus, as much as possible	

The dose was repeated every half hour the first day, every fifteen minutes the second day, every hour the third day, followed by eucalyptol m. x., guaiacol m. i., every three hours, in the first case one day and in the second case two days; followed by a No. v capsule of the first mixture, every fifteen minutes in one case and every hour in the other case, for one day, when the eucalyptol and guaiacol mixture was used until the temperature was normal. Mrs. W.'s bowels not having moved since her illness, she was given a little magnesia, and since she had not slept for four or five nights, her husband gave her a gtt. xx dose of the tincture of opium. Both were given a little ipecac.

Thus the author claimed to be able to cure every case of typhoid fever. The disease is aborted in every instance. Were this country threatened with the invasion of a foreign enemy capable of destroying the lives of 50,000 of her people and prostrating a half million more, as does typhoid fever every year; and were a military man to present evidence of his ability to defeat that foe, such as has been given of the author's ability to save the country the tremendous suffering and loss of life and time caused by typhoid fever, the entire resources of the nation would be placed at his disposal. He said: "I ask you, does not the country owe me one typhoid hospital in which to alleviate a little more suffering and save a few more lives than is possible in private practice? If the profession and the people can be made to recognize this disease by its earliest symptoms, and send its victims to me as soon as it makes its appearance, I make you a solemn promise to return every one of them without a death in much less than one-half the time, and with little or no impairment of the constitution."

DR. COLLAMORE—These papers are very interesting, in that they offer a decided treatment of typhoid fever. A good working theory is the one commonly accepted, that typhoid fever is due to the presence of the typhoid bacillus in the intestinal canal, and the typhoid condition is induced by the action of the toxines produced by this bacillus. Two theories have been offered. The first essayist would drive it out of the system by repeatedly sweeping out the intestinal canal. Theoretically that is good treatment. The other theory is the destruction of the germ or toxine, and the initiative treatment by full doses of calomel recognizes both theories. They work together harmoniously, and they are combined in the treatment given by Dr. Woodbridge. His theory is good because it offers a positive treatment for typhoid fever, and one which is followed by excellent results, as his statistics show. There is only one criticism, and that is the recipe given resembles the so-called "shot-gun" prescriptions. It would be interesting to know whether the entire combination is necessary.

DR. MURPHY, Cincinnati—When any physician claims that he never lost any case of disease by a certain method of treatment, his statement is open to challenge. The fever curve is not always characteristic, and many times the symptoms are misleading. It is a question whether the author of the last paper has not been mistaken in diagnosis. The efforts to eliminate the poison, suggested by the author of the first paper, would not be effectual, because the bacillus can not be gotten out in that way. The best treatment is almost nothing.

DR. J. E. CONE, Youngstown—I am also from Youngstown. We have had several fights over this, and we are still watching his cases.

DR. HERRICK, Cleveland—In all diseases there is a disturbance of normal nutrition. The conditions of nutrition are disturbed from without or from within. In typhoid fever the Peyer's glands of the intestines, in the ileo-cecal valve region are diseased. The infection is conveyed either through the veins to the portal vessel and the liver and lung, or by the lymphatics it is poured into the left subclavian vein. There is no other avenue of approach to the system. In the treatment, rest is of most value. The patient should avoid all solid food, even milk. Warm applications over the abdomen have a grateful effect.

DR. BEARDSLEY, Ottawa—Cases of typhoid fever can be positively diagnosed only upon post-mortem. Flushing the bowel with calomel or podophyllin is of great value in the treatment. Some of the salts are probably to be preferred. The Doctor's "shot-gun" treatment is not to be recommended. Small doses of something of an antiseptic character may be administered, and perhaps some stimulants. Milk should not be given, and the patients should be kept quiet. The sulpho-carbolate of zinc is of value to flush out the intestinal canal, and should be pushed until its effect is apparent.

DR. SINNETT, Granville, reported two cases, nurses, successfully treated with not more than twenty doses of medicine in six weeks, and also eighteen cases occurring in the infirmary which recovered under similar treatment. Alcohol and nitric acid combined is a valuable remedy. We should always endeavor to give rest. Dover's powders may be administered. A prohibition of milk is not necessary.

DR. ROBERT PETER—By removing the contents of the bowel we give rest. If we have an armful of wood, the arm is distended and the muscles become tired; we secure rest by relieving the arm of the burden. So in typhoid fever, the bowels are distended and the tissues on the stretch, and they can only be rested by getting rid of the contents.

DR. WOODBRIDGE—The remarks of Dr. Murphy, eloquent and learned as they are, are not at all unique, but are such as we have heard many times before. They simply repeat the old, old story, that typhoid fever can not be treated. If we have in a vessel the bacilli which cause a disease, and know how to introduce something into the vessel that will destroy them, we can with certainty destroy them in every vessel. Having proven that it can be destroyed in one case, it follows that it can be cured in every case. If you institute early treatment for typhoid fever in every case, you will treat every disease that can possibly be mistaken for it in the best possible manner, and will save every case of typhoid fever.

SECTION ON SURGERY.

SECOND DAY—MORNING SESSION.

The Section was called to order at 8:45 A.M., Dr. Dandridge in the chair. The invitation of the Cleveland Medical Society, inviting the Society to hear a lecture to be delivered by Dr. Wm. Pepper before the Cleveland Medical Society, June 22, was received.

"Unjust Malpractice Suits; Causes and Prevention," by DR. WILLIAM ESTEP, Loydsville, was read by title.

DR. W. D. HAMILTON, of Columbus, then read a paper, "A Case of Cirsoid Aneurism;" and DR. J. C. CROSSLAND, Zanesville, presented a case of aneurism by anastomosis. DR. W. J. CONKLIN, Dayton, read a paper on "Splenectomy," with the report of a successful case.

DR. DONALD MACLEAN, Detroit, read a paper on

THE TREATMENT OF FRACTURES IN THE LIGHT OF ADVANCED HISTOLOGY AND PATHOLOGY.

No material benefit can be secured in cases of fracture of the thigh by the so-called methods of extension and counter-extension. So far as that part of the treatment is concerned, our efforts are futile. No method has ever been invented which would extend or counter-extend to any extent. If a patient is put under extension and counter-extension by any method, in a case of fracture of the thigh, you will in a great number of cases, within a day or two, find the weight on the floor and the patient propped up with pillows. For one reason or another, extension and counter-extension is not carried out in the treatment of fracture of the thigh. In fractures of the humerus, bones of the leg and ribs, extension and counter-extension are not employed, and why should it be more necessary in cases of fracture of the femur than of other bones? But if the surgeons are deprived of extension and counter-extension in the treatment of these fractures they should be given something better instead. Keeping the mode of formation of new bone in view the physician should watch it closely and keep the parts in position by means of sandbags, and often manipulate it to see how things are progressing, moving the sandbags one way and another without subjecting the patient to any pain. Union will thus be secured in good position. We should not leave fractures of the thigh to take care of themselves.

DR. ALLEN opened the discussion, speaking of fractures of the neck of the femur. Here the injury is often slight, most common in persons beyond middle life. The shortening may not be beyond a quarter of an inch, and if there is previously a difference in the length of the legs, and the injured leg was the longer, they may then be the same when injured. Under normal conditions a line from the anterior spinous process of the ilium down to the sacrum will go over the tip of the femur, and this point is of greatest value in diagnosis.

DR. LEONARD FREEMAN, Cincinnati—In fractures of the femur, with shortening which can not be overcome, in which the fragments can not be put in place, it would be perfectly proper to cut down on the femur and adjust them with the fingers. In Colles' fracture, the periosteum passes from the fragment above to the fragment below, binding the two fragments together so that the lower one will not slide on the upper and the fragment can not be easily replaced. This may be overcome by over-extending the end in the direction the injury took place, thus making everything loose. With the thumb the fragment may be easily replaced. It is best not to apply any dressing at all to such a fracture. If a bandage is used it should not be tight.

DR. STAMM, Fremont—If the patient is able to elevate the leg you may exclude fracture. There is often absolutely no evidence of fracture to be found, and yet there is afterward found to be fracture. As to the treatment we should pay more attention to massage.

DR. HERRICK—In proportion to the condition of development of the animal and the age of the individual is the reparative power facilitated or impaired. The proper time for adjustment is during the collapse from the injury causing the fracture. That having past, the patient should go over the period of excitement and inflammation.

DR. THAD. A. REAMY, Cincinnati—A Zanesville patient about 10 or 12 years of age came under my care when I was practicing general surgery. He had fallen out of bed, causing a fracture, and he has recovered, without shortening of the limb, by the application of a plaster-of-paris cast. In another case, fragments from both bones of the leg were removed at two separate operations, and they afterwards grew in.

DR. LARIMORE, Mt. Vernon, stated that he was going to stick to the orthodox treatment of fractures of the femur for fear of the results of a malpractice suit which might follow, and which he felt he could not afford. A good many physicians have their world's goods in their wife's name, which is a good plan.

DR. FORBES, Toledo—To let go these safeguards will certainly expose the physician to criticism and malpractice suits and it can do no harm to follow in the footsteps of those who have gone before. In this connection, it is best to apply extension from which no evil can result and which may save shortening.

DR. MACLEAN in closing, said: In order for any science to advance, it is necessary to seek to improve upon the ways of our forefathers, and we should not, therefore, be satisfied to follow in their footsteps. The author will be satisfied if the paper presented to-day will set going a new train of thought in regard to the subject of fractures.

DR. HUNTER ROBB, Baltimore, Md., read a very interesting paper on "Practical Application of the Principles of Sterilization." Discussed by Drs. Oliver, C. A. L. Reed and Kelly.

On motion of Dr. Reed, the thanks of the Society were tendered Dr. Robb and Dr. Maclean.

DR. M. STAMM, Fremont, read a paper on "Gastrostomy; A New Method," and presented a specimen in illustration.

THE RADICAL CURE OF HERNIA.

This paper was read by DR. F. C. LARIMORE, of Mt. Vernon. Report of five cases, supplementary to cases reported to the Society in 1891 and 1892, making a total of ten cases. The five previous cases are recorded in the Transactions of the Society for 1891, p. 94, and 1892, p. 297.

The suture employed in each case was kangaroo tendon, and the dressing, iodoform collodion and a compress of cotton.

The author also gave an interesting table of operations for non-strangulated hernia, performed in Europe and America. The following conclusions were reached:

1. The operation for the radical cure of hernia is a safe operation. Mortality, .86 per cent.
2. The operation results in a permanent cure, relapses occurring in but 7.5 per cent. of the cases.
3. The operation should be made with the strictest aseptic technique.
4. Make a free incision over and with the long axis of the tumor, from without inward.
5. Open the sac and examine the contents deliberately and carefully, generally resecting the omentum.
6. Dissect up the sac, ligate its neck high up with a chain suture, and resect it below the suture.
7. Restore the obliquity of the inguinal canal by two rows of deep, continuous double sutures.
8. Close the integument with a buried suture.
9. For all sutures use kangaroo tendon, and do not draw so tight as to constrict the tissues.
10. Final dressing: Iodoform collodion.
11. Keep patient in bed from three to seven days.
12. Do not put on a truss.

DR. LAWRENCE, Columbus, considered "radical" in itself a reflection on surgery.

DR. C. N. SMITH—A solitary case, except in childhood, rarely occurs except in the corpulent, those weighing from 270 to 280 pounds. He also mentioned a case of strangulation in which there was found nine ounces of sloughing omentum.

DR. MEANS complimented the paper, and thought no doubt almost all ordinary cases may be radically cured.

The Committees on Publication, Legislation and Ethics were then announced.

GENERAL SESSION—EXECUTIVE.

SECOND DAY—AFTERNOON SESSION.

The first item of business was the reports of committees. The Committee on Admissions reported through Dr. Chapman, and on motion the report was adopted. The reports of the Committees on Finance and Publication were also heard and adopted.

The following were then appointed delegates to the AMERICAN MEDICAL ASSOCIATION: Dr. Loving, Columbus; Dr. Taylor, Cincinnati; Dr. X. C. Scott, Cleveland; Dr. Larimore, Mt. Vernon; Dr. Bricker, Shelby; Dr. Fowler, Delaware; Dr. M. Stamm, Fremont; Drs. R. C. S. Reed, Holston, Woodbridge and Alcorn.

DR. CULBERTSON moved that a Committee on State Legislation be appointed, consisting of a chairman, and one member from each county society. An amendment was added, by Dr. Scott, Cleveland, that a member be appointed from a district society in those counties not having a county society. Accepted and unanimously adopted.

DR. HUNTER ROBB and Dr. Maclean were elected honorary members of the Society.

THE PRESIDENT'S Address was then delivered. He said that if the Society is to play its rôle as an active compact organization, it must be composed of a well-defined permanent membership, which continues from year to year. One of the definite purposes of the Society is the promotion of all

measures adapted to the relief of the suffering, the improvement of the health, and the protection of the lives of the community, and in furtherance of this object, this purpose can most certainly be accomplished by drawing in close sympathy with those bodies created by the State for the preservation of the health and lives of its citizens. No more important communication could be made to the Society at this time than a brief bulletin, stating the present condition of diseases throughout the State, their tendency to spread or evidence of their decline. The time is past when the few years spent in the medical school could possibly furnish all that is necessary in a medical education. We must look to the schools and universities, with their laboratories and instructions in chemistry and physics and biology for a large part of the essential training necessary for the more special study of medicine.

DR. C. A. L. REED, Cincinnati, read a paper on

THE TREATMENT OF UTERINE FIBROIDS AS INDICATED BY THEIR NATURAL HISTORY.

The diagnosis of uterine tumors must be made in recognition of their natural history, and the following conclusions were reached:

1. The natural history of uterine myomata indicates that *a*, multinodular myomata which are yet small and apparently indolent and which do not cause embarrassing hemorrhage, may be safely left to observation before relegating them for operation; and *b*, that single soft myomata and diffuse hyperplasias of the uterus are essentially progressive growths and should be operated upon as soon as diagnosed.

2. That in operating upon multiple myomata of small size we should have recourse to *a*, extirpation of the appendages; and *b*, that ligation of the uterine arteries should be practiced only when the patient will consent to it and will not consent to abdominal incision.

3. In all cases of large multiple myomata showing a tendency to growth, complete extirpation should be practiced.

4. In all cases of simple myoma or of diffuse progressive hyperplasia (the "soft fibroid" of many authors), complete removal should be practiced as soon as the diagnosis is established.

DR. REAMY, Cincinnati, referred to the last point in Dr. Reed's paper. It indicates that not only should the clinician estimate the size of the growth, the age of the subject and the physical condition of the patient, but he should inquire whether the growth is a multiple or a single tumor; whether it is smooth or nodular. A single tumor will not be arrested by removal of the appendages with anything like the certainty a multiple tumor will be. If several combined, or two or three or more with a size each equal to the single tumor, the multiple one will be arrested in growth by removal of the appendages more certainly then the single tumor. However, the single tumors sometimes cease to grow, either spontaneously or under treatment, and these cases do not invariably demand surgical interference, and the question arises whether the reasonable certainty of growth in this class of tumors justifies us in taking advantage of the difference in ease with which the operation may be done, and the difference in danger of the operation. It is well enough to keep the case under observation, determine whether it continues to grow, and subject it to the same treatment as in multiple neoplasm. If a tumor of this character does not produce bad symptoms we are not always justified in subjecting the patient to operative interference. The mortality in the hands of experts is such that the question of prime importance is no longer whether the patient will survive the operation but the principal question is, What will be the influence of the removal of the appendages upon the woman's psychologic as well as social condition. The glory of surgery will be when we are able to not only make the diagnosis and classify the cases, but when we will be able to arrest the growth of the tumor in these cases without removing the uterus. Experience in the dead room shows that one out of five of women 35 years of age have a fibroid tumor of the uterus, and this shows that in an enormous number of these cases arrest of the growth does take place without the aid of either the physician or surgeon. The administration of ergot will increase the tendency to arrest the growth of these tumors, and it is our duty to try to arrest them while they are young. For this purpose electricity also is valuable. Some methods are best in some cases, and other methods are better adapted to other cases.

SOME REMARKS ON THE TOTAL EXTIRPATION OF THE FIBROID UTERUS, WITH ILLUSTRATIVE SPECIMENS,

was read by DR. RUFUS B. HALL, Cincinnati. Only a small percentage of those suffering from fibroids require operative interference for relief. This fact, however, only increases our responsibility in determining early the cases really requiring operation. The chief symptoms and secondary diseases of cases requiring operative interference are hemorrhage, pain, cystitis, peritonitis, and pressure causing temporary intestinal obstruction. With the present low mortality following total extirpation of the fibroid uterus, we should not hesitate to advise all patients who are subjects of fibroid tumor, if their life is endangered or health destroyed, either from the tumor or complications arising from it, to submit to the operation at once.

DR. C. N. SMITH, Toledo, read a paper entitled, "Total Extirpation of a Pregnant Myomatous Uterus, with Specimen."

GENERAL SESSION.

THIRD DAY—MORNING SESSION.

The meeting was called to order at 8:45 A.M., Dr. Dandridge presiding. The following papers were read by title and referred to the Committee on Publication: "Nephrectomy for Tuberculosis," DR. R. HARVEY REED. "Multiple Neuritis," by DR. JOS. RANSOHOFF.

DR. A. E. BELL, Zanesville, then read an interesting paper on "Pneumonia."

THE PHENOMENA OF FERTILIZATION AND THEIR BEARING ON HEREDITY.

This was presented by DR. J. PLAYFAIR MCMURRICH, Professor of Biology, in the University of Cincinnati. The author showed that our knowledge of the laws of heredity depends upon our understanding of the phenomena of fertilization of the ovum, since through the primary cell all heredity is transmitted. The paper showed great research along biologic lines.

On motion, the thanks of the Society were extended to Drs. McMurrich and Kellicott.

THE IMPORTANCE OF DETERMINING REFLEX IRRITATION IN THE TREATMENT OF CERTAIN CATARRHAL DISEASES,

was given by DR. JOHN P. SAWYER, Cleveland. The sympathetic relations existing between the various mucous membranes of the body are so intimate that disordered conditions in the one induces disturbance in its fellows, and that relief of the first is usually followed by relief in the second. This relation exists because of the connection between mucous membranes and the control of their functions exercised by the nervous system. The liver and pancreas, as well as the kidney, are to be considered as extensions of mucous structure. The well-known digestive and urinary disorders of menstruation, and of endometritis or ovaritis, call to mind the effectiveness of reflex irritants from the genital organs. The relief of headaches, vertigo and digestive disturbance by proper treatment of faulty accommodation of the eye may also be mentioned. In a large number of cases within the past two years, careful examination revealed peripheral sources of irritation, after the relief of which marked improvement was observed in the course of nephritis, diabetes, hepatitis and pulmonary catarrh. The author reported three cases in illustration. Discussed by Drs. Sabin and Gray.

"Diseases of the Cornea in Childhood," by DR. C. W. TANGEMAN, Cincinnati, and "Syphilitic Spinal Paralysis," DR. C. J. ALDRICH, Cleveland, were read by title and referred to the Committee on Publication.

DR. WILLIS W. HALL, Springfield, Ohio, then read a paper on

SUBCUTANEOUS OSTEOTOMY, WITH REPORT OF CASES—A NEW OSTEOTOME.

The author referred to the correction of genu valgum and genu varum by subcutaneous osteotomy. In the cases reported four sections were made above the knee and two below. In all the cases there was immediate union of the soft parts and rapid and firm union of the bone. No pus appeared in any of them, and in none was the temperature above 99 degrees. The instrument used is an osteotome, a little shorter than those generally used, and therefore under better control of the operator. The mallet for driving the osteotome is of lignum vitæ, with hard wood handle, and weighs twelve ounces.

DR. J. E. CONE, Youngstown, presented a paper on "Multiple Gangrene."

PRACTICAL POINTS IN ETHER ANESTHESIA,

by DR. W. D. PORTER, Cincinnati. The first subject discussed was the Trendelenberg position, with reference to its effects on anesthesia. It was stated that the table is often

made so that the shoulders of the patient are crowded into the angle formed by the inclined and horizontal portions, thus flexing the head on the chest and interfering with respiration. The thighs, body and head ought to lie on a single inclined plane. The body should be secured from slipping down the incline by fastening the legs or feet. The plan of allowing the shoulders to rest against hooks is to be condemned, as they interfere with the free action of the chest muscles. In producing anesthesia the ether should be given very gradually until consciousness is about lost. Up to this point the open method should be used. Then the ether should be pushed to full anesthesia, the whole process requiring on the average five or six minutes. The Clover inhaler is advocated. The author employs the bag only during the last two or three minutes required to produce anesthesia, and then he discards the bag altogether and maintains anesthesia by the open method. The main indication in maintaining anesthesia is to select the proper depth for the narcosis, and to shorten as much as possible the necessary vacillations above and below this plane. For this purpose the Clover inhaler is valuable, as it gives the anesthetizer accurate control over the amount of ether inhaled, and enables him to make prompt changes in the quantity. Attention was called to dangerous relaxation and respiratory failure, sometimes following excessive muscular rigidity occurring in the first stage of narcosis. The author has observed it in three cases, and thinks it is due to reaction from the excessive strain on the muscle fibers. In conclusion, he advocates, at length, the importance of having a hot room in which to administer the anesthetic. It lessens the danger from shock, the danger to the lungs and the danger to the kidneys. The temperature should be 80 to 90 degrees F., depending on condition of patient and the nature of the operation.

DR. LEONARD FREEMAN, Cincinnati, read a paper on "Trephining, with Report of Cases," and a paper on "Tonsillitis" was presented by DR. H. J. NOYES, McConnellsville.

The following officers were elected for the ensuing year: President, D. N. Kinsman, Columbus; First Vice-President, C. O. Probst, Columbus; Second Vice-President, M. Stamm, Fremont; Third Vice-President, J. C. Buckner, Cincinnati; Fourth Vice-President, Robert Peter, Canal Dover; Secretary, Thomas Hubbard, Toledo; Assistant Secretary, Chas. Graefe, Sandusky; Treasurer, Jas. A. Duncan, Toledo.

Committee on Finance, term 1892, F. C. Gray, Dayton (unexpired term of Dr. Pomerine, deceased); term 1894, N. P. Dandridge, Cincinnati.

Committee on Ethics, F. C. Larimore, Mt. Vernon. Committee on Publication, Jno. P. Sawyer, Cleveland. Committee on Legislation, Wm. D. Hamilton, Columbus. Committee on Admissions, W. C. Chapman, Toledo.

The Society then adjourned to meet at Columbus the third Wednesday in May, 1895.

SELECTIONS.

Ethnology of the Natives of North Greenland.—Dr. Frederick A. Cook, ethnologist of the first Peary expedition, has given to the New York *Herald* some interesting facts noted by him while in the Arctic country. His observations relate to the Esquimaux living and prospering—in a small way—in latitude 77° 35′ north. The winter camp of the expedition was pitched, in that latitude, on the southerly shore of MacCormack's Bay. Dr. Cook was constantly on the alert to study the natives who presented themselves at the camp. He states the following leading particulars:

"All the natives whose curiosity led them there to see a white man for the first time were disrobed, examined and photographed both in full costume and nude. Eighty of this tribe of 243 were thus minutely examined and photographed, showing front, side and rear views, bringing out accurately in the nude pictures many of the anatomical peculiarities. These photographs have been turned over to the Academy of Natural Sciences of Philadelphia and the Smithsonian Institute at Washington, where men of science can study them.

"The camera is certainly one of the most important adjuncts to an explorer's outfit. Not only does it render faithfully what the traveler sees and learns, but it prevents that perversion and distortion of facts to which, unfortunately, many observers are prone. Each individual observer sees differently, all seemingly in the direction of exaggeration; therefore, ethnographical observation should be reduced to a single standard of comparison—that of photographs and figures. Hence I have reduced my physical observations as far as possible to figures and pictures.

"The Esquimaux are short in stature. Men average 5 feet, 1½ inches, and weigh 135 pounds, and women are 4 feet 8 inches and average 118 pounds. They are of an olive color, but to get the true shade of Esquimau skin a prolonged bath is necessary, and this, from birth to death, is foreign to the Esquimau. Upon the question of washing or bathing, their customs are fixed both by tradition and habit, hence it requires a great deal of persuasion to have an Esquimau maiden indulge in what she considers a useless task. The color of an Esquimau's skin depends much upon her age.

"In the isolation of that long and seemingly endless night—the Arctic winter—human adaptability is such that one early learns to admire these greasy faced, dark-eyed maidens, dressed in skins, about as well as our blue-eyed daisies in silks and satins while at home. Our practice of baths was to them ridiculous, and they never failed to call our attention to the fact that the day after a bath washing was again as necessary as the day previous. In this way they criticised many of our actions, much to their amusement. Our manner of dress, our table etiquette, our food and drink were sources of endless amusement to them. They are a people with broad skulls, nearly circular, retreating foreheads, and slightly protruding chins; black, coarse hair, very prominent molar bones, a small nose, composed largely of fat; eyes invariably brown, with small pupils, and well adapted to seeing objects at great distances, but the eye is horizontally set, or nearly so, and not obliquely as those of the Chinese. Their faces are often nearly square and flat, so that if a pencil be laid from cheek to cheek over the bridge of the nose it would not touch it. This great development of the muscles of the cheeks is due to their method of tanning skins by a process of chewing, and by eating raw and frozen meat, which is not always tender. Men do not develop beards or mustaches until they arrive at the mature age of 40 or 45 years, and they inferred from this that since I had a heavy beard I must be a very old man, because their oldest men had but a few straggling hairs on their chins and lips.

"The women are absolutely hairless, except their heads, and many of the old women are bald. The skin of the Esquimau varies in color from that of a slightly jaundiced hue to a bronze or olive color. It is much less porous and less active than that of other races. The Esquimau is favored with a superabundance of blood. So full blooded is he that a small cut would bleed for hours, while among us in the low temperatures our blood retreated from the skin and when cut we would hardly bleed at all. The slightest excitement of unusual character would cause profuse bleeding from mucous membranes of the natives. The Esquimaux, like most Arctic animals, have beneath their skin a blanket of fat or blubber, which encases the body and protects it against extremes of temperature. The abundance of blood and blanket of fat are very important elements in the construction of the Esquimau body. It will seen from this that nature has fortified these people against the rigors of the rough Arctic climate. Owing to their wandering existence and extensive exercise their muscular system is thoroughly developed, and the picture of Ikwa carrying a stone nearly as large as himself will show the muscular power of these people.

"I could hardly say that their nerves were well developed or their sensation very acute. Their clothing is so made that when an Esquimau stands perfectly straight a part of his bare abdomen is exposed to the blasting winds and drifting snow, and when he stoops a band of bare skin between the trousers and coat, directly over the kidneys is exposed, and this often in a temperature of 80 degrees below the freezing point. No evil that I could discover resulted from these exposures. We adopted the Esquimau style of dress, but so modified the coats and trousers that our stomachs and dorsal regions were well protected.

"The appendages of the Esquimaux are all small. Hands, feet, nose and ears are exceptionally small. It would seem that nature had provided them with these to lessen their chances of freezing.

"One can not fail to notice the prominent abdomens of both men and women. This is due to their gluttonous eating, and since they live on an absolute animal diet, much more surface is necessary for intestinal absorption, and although I was not afforded the opportunity of measuring

their intestinal length and capacity, I believe they have several feet more intestines than we have. Certainly they have the ability to put away about as much meat at one meal as an ordinary Caucasian would eat in a month."

The Methods of the Manual Training School in Medical Education.[1]—There can be mentioned scarcely a system of education so imperfect and so unphilosophical as that which prevails in the medical colleges of this country. The American physicians who have become skilful practitioners and distinguished teachers or writers, have become so in spite of the system under which they were taught in college.

Although there is improvement in our schools, there still exists too great disproportion in the efforts of teachers to tell and show students, as compared with those which require them to do for themselves.

The absurdity of this system becomes the more apparent, if possible, by a comparison with the methods by which mechanics learn their trades. Young men in our machine shops do not spend nearly all their time listening to lectures on machinery and looking at workmen using tools in its construction. What apprentice could ever learn in this way to make a shoe, an engine, or sewing machine?

The apprentice commences from the first with his tools to perform the work to which he expects to devote his life. The art of medicine can only be well learned by acquiring skilful use of the necessary instruments and remedies.

The admirable address of Professor Vaughan at the last meeting of this Association leaves little to be said regarding certain departments of medical instruction. I wish at this time to discuss some of the principles to which Professor Vaughan made brief mention at the close of his address.

Assuming that the student in laboratory work acquires practical knowledge of the microscope sufficient for his progress in its use without a teacher, I wish first to direct attention to the importance of due instruction in the use of the ordinary instruments employed in studying diagnosis. These are chiefly the stethoscope, the hammer and pleximeter, the laryngoscope, rhinoscope, the ophthalmoscope, otoscope, the probe, the exploring needle, the catheter, and speculum.

It is a lamentable fact, whatever may be stated in the annual announcements of our colleges, that instruction in the manipulation of these instruments, even those used in auscultation and percussion, is wholly inadequate for the needs of the student.

Let me explain my meaning by referring to a method of teaching the use of three important instruments, two of which present considerable difficulty to nearly all students.

Models of the head in papier-maché may contain most admirable representations of the normal and of the abnormal tissues of the throat, nostrils and ears. In the orbits may be placed ordinary transparent models of the eye (schematic eye) such as are constructed for teaching the use of the ophthalmoscope. These eyes are remarkably like the human eye and illustrate accurately many of the intraocular diseases and also the errors of refraction. By the aid of these models the use of the laryngoscope, ophthalmoscope and otoscope may be perfectly acquired. After due practice the beginner can easily and intelligently examine eyes, ears and throats of patients. The principles of this method may be applied in teaching the use of the other instruments of diagnosis I have mentioned, the human body—either dead or living—being employed in certain cases instead of models.

The instruments which are employed in treatment are chiefly the knife, scissors, forceps, needle and thread, curette, drill, saw, chisel, sound, catheter, bandages, splints and braces, and obstetrical instruments.

Is it not true that the average student, even in our best schools, does not receive adequate training in the manipulation of these ordinary instruments? I emphasize the word adequate. To furnish such training is simply to introduce in their extent and perfection the methods of our best manual training schools.

In obstetrics we find a sad deficiency in practical instruction. The "alcohol baby" and the "rubber mother," the recent fetus and the eviscerated female cadaver afford excellent means for training the beginner in certain procedures. They should, however, simply prepare the way for bedside instruction.

It is far from my intention to attempt to persuade this assembly of teachers that undergraduates can become experts in the manipulations which are practiced in medicine, surgery and obstetrics. I do, however, insist, upon the proposition that every young physician should be as well prepared for his future work as a young "journeyman" for his trade.

We may now consider certain difficulties which arise in attempting to introduce honestly and faithfully these methods into our schools. First, the expense. The laboratory instruction as arranged by Professor Vaughan, and the practical work which I have suggested, in a school of 600 students, implies an aggregate of buildings which can be provided only at an enormous expense. The cost of material, including apparatus, human cadavers and the bodies of animals would also be very large. No small sum would be required for salaries of increased numbers of efficient professors, instructors, demonstrators and assistants of various grades.

A lying-in hospital which could provide the adequate bedside experience, which every student should receive, would still further increase the expense beyond the means of nearly every school in the country. This difficulty, in the present state of medical education is absolutely insurmountable, for no school can provide instruction on the broad plan I have sketched, with the means derived solely from the fees of students. State aid, private munificence and increase of fees will render feasible the plans I propose.

The next difficulty to which I will allude is that of so dividing the student's time that he may perform all this variety of practical work and yet neglect neither lectures, recitations, clinics, nor the study of his books. There are several ways in which this difficulty may be diminished. A more careful, yet reasonable, preliminary examination in English literature, physics, mathematics and the rudiments of Latin will indirectly accomplish much to economize the student's time. The mental discipline in gaining this knowledge, and the knowledge itself, furnish the student with valuable mental time and labor-saving instruments. An obvious and simple means of diminishing this difficulty is to demand attendance during at least four terms of nine months each. Valuable time may be saved for the student by reducing the number of typical didactic lectures to such a minimum as may be consistent with the best interests of the student.

Since no student, however industrious he may be, can acquire more than a knowledge of the fundamental facts and principles of his science, the greatest care should be observed by his teachers that he spends little time on those matters which he can well pursue independently after he has been graduated. Turn for example to the subject of materia medica and therapeutics. A good text-book in which forty or fifty remedies only are carefully discussed may contain all the average student really needs. He can investigate at his leisure and understandingly all other articles of the Pharmacopœa, after he has entered upon practice.

There is one more difficulty, which will not be overcome without great effort on the part of our schools and of the State. The mass of students in this country are seeking primarily, not a good medical education, but diplomas, that they may at the least expense of time and money commence practice and earn a living. Our medical schools have been compelled from want of means to supply simply what students demand—diplomas with very inadequate teaching.

This is analogous to the condition which prevails in our trades. Few boys are willing to learn well a trade. They are content to acquire facility in performing a very small part of what is expected of a thorough workman—so impatient are they to earn wages.

In our medical schools the state of affairs will at once improve if the license to practice shall depend upon an examination before a State board, which shall perform its duties strictly yet judiciously.

In conclusion I may say that it is the task of our schools to devise a curriculum, which in due proportion—whatever that may be—will employ laboratory methods in teaching the *art* as well as the *science* of medicine. By the science of medicine I mean that which may be taught by laboratory work in anatomy, physiology, chemistry, bacteriology and pathology. By the art of medicine I mean that which may be taught by adequate laboratory methods regarding every procedure and the manipulation of every instrument which is employed in medicine, surgery and obstetrics.

In connection with this work will be clinics, recitations, didactic lectures and exercises in handling and measuring medicines and in writing prescriptions.

[1] Read at the Fourth Annual Meeting of the Association of the American Medical Colleges, Milwaukee, Wis., June 7, 1893, by E. L. Holmes, M.D., LL.D.

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SATURDAY, JUNE 16, 1894.

HOSPITAL SPREAD OF SMALLPOX.

Popular dread of the "pest-house" and the bitter opposition of the average neighborhood to its proximity are among some of the difficulties with which the sanitary executive has to deal during the prevalence of smallpox. During the recent epidemic outbreak of the disease in this country, numerous instances occurred where violence was resorted to in order to prevent the removal of patients to hospital; successful resistance was opposed to the establishment of such hospitals on given sites; and the axe and the torch in the hands of mobs were used for the destruction of those already in existence.

That hospital treatment of smallpox is wholly defensible—not only because of the measure of protection it secures to the public by the better isolation of cases, but because of the greater chance of recovery of the patient himself—has been abundantly proven. The late DR. RAUCH, who thoroughly improved his exceptional opportunities for the practical study of smallpox epidemics, has shown in his history of the pandemic of 1881–83, that the mortality ratio of hospital patients was notably less than that of those treated at home. In one large city cited, among 6,976 cases reported there were 2,518 deaths—a mortality rate of 36.09 per cent.; of this total number, 4,533 cases were treated at home, with 1,874 deaths—a mortality rate of 41.12 per cent.; 2,055 cases were treated in hospital, with 598 deaths—a mortality rate of 29.09 per cent. These figures, and they are sufficiently large to warrant a generalization, show that the smallpox patient has an appreciably better chance of recovery in hospital than at home.

There is thus seen to be no good reason for opposition to removal to hospital, but the contrary.

Recent experience, however, tends to show that the popular antipathy to the propinquity of a "pest-house" may be justifiable. There seems to be a general belief that the contagion of smallpox is not carried aerially beyond 200 feet, but is destroyed by dilution and oxydation within that distance. This belief is purely empiric; there are no scientific data for its foundation; and what is known of the diffusibility and persistence of the smallpox contagium makes it not unlikely that it may be conveyed aerially to much greater distances, as are other emanations of the human body which are recognized at such distances by the keen-scented lower animals.

A recent report on the smallpox epidemic of 1892–3 in the notorious anti-vaccination town of Leicester, Eng., strongly bears out this latter view. The smallpox hospital of the town is situated in a district locally known as Newfoundpool, having a population of about 3,000 persons living in 600 houses. A distance of 620 feet separates the hospital from the nearest house and the farthest group of houses in the district is 1,750 feet from the hospital. DR. PRIESTLEY, the Medical Officer of Health for the town, has traced the origin of cases with exceptional thoroughness and success, and he finds that almost one-fourth (24.4 per cent.) of the total number of cases during the epidemic were "possibly due to hospital influence," and that nearly one-fifth (18.7 per cent.) were "almost unquestionably due to the direct agency of the hospital."

In order that there may be no question as to the meaning of the phrases, "hospital influence" and "direct agency of the hospital," and to show that DR. PRIESTLEY is distinctly dealing with the aerial spread of smallpox from a "pest-house," it should be noted that he shows that, in February, when there was an average of fifty-four cases in the hospital and the wind was blowing away from Newfoundpool, there was no special spread of smallpox in the district as compared with the rest of the town; while in June, with a less number in hospital (an average of only thirty-four), but with the prevailing winds blowing directly over the district, "there was a great proportionate spread in the locality."

Especial care seems to have been taken to ascertain if conditions other than that of hospital aerial agency could be made responsible for the disproportionate incidence of smallpox in the special hospital district; but without success. No dissemination from personal contact could be traced; the sanitary conditions of the Newfoundpool houses in which smallpox occurred were personally investigated by DR. PRIESTLEY and found, "with very few exceptions," to be good; even the possible agency of flies and rodents was considered. All the evidence, both of a positive and of a negative character, makes for the conclusion that smallpox contagion was carried from the smallpox hospital through the air a distance of 625 feet to the nearest group of houses; and, in a circle of 2,000 feet around the hospital, caused

smallpox in the enormous proportion of 15 cases in this locality to every single case that occurred in the rest of the town.

Obviously, there is a very important lesson for health authorities in these facts and figures. It becomes a serious question whether, in the light of this Leicester experience, the courts would sustain the establishment of the usual hospital for contagious diseases within 2,000 feet, at least, of human habitations. Fortunately, it is not necessary—and it has not, for many years, been justifiable—to adhere to the usual construction of the contagious-disease hospital. This essential adjunct to the "plant" of the urban health department may be so built as to deprive it of any menace or offense to its immediate neighborhood. The method of ventilation by aspiration through a furnace or sheet of flame effectually destroys all possibility of the escape of disease germs or contagion into the surrounding atmosphere. The construction of a hospital for contagious diseases on any other plan should not be countenanced.

WATER SUPPLIES OF LARGE CITIES.

"Cholera is a sensational disease," observes MR. ALBERT SHAW in his paper on "Hamburg's New Sanitary Impulse," in the current number of the *Atlantic Monthly*. Like that other typical filth-produced disease, typhoid or enteric fever, a single epidemic outbreak of it may result in greater sanitary gains than the constant ravages of more distinctive but more insidious and commonplace maladies, familiarity with which breeds municipal tolerance, if not contempt.

The filtration of the entire water supply of Hamburg from the River Elbe had been under discussion and had been recommended for nearly twenty years; but, in the absence of any pressing emergency, it was not until 1890 that it was actually determined upon, and plans adopted and estimates made by which it seemed feasible to have the filtration plant ready for use during the present year. Cholera made its appearance in 1892, and its epidemic spread was so clearly due to the contaminated water supply that prodigious effort was put forth and the plant was in operation nearly a year earlier than the most sanguine had ventured to anticipate. By these filters the water of the Elbe, which was found to contain the cholera vibrio constantly during the summer and autumn of 1893—after the plant was put in operation—and which regularly contains from 30,000 to 100,000 bacteria to the cubic centimeter at flood tide and from 400 to 1,200 in the river beyond the tidal influence, is now so purified as to contain only from four to ten to the cubic centimeter, and frequently no bacteria whatever are found in the water as it leaves the filters.

As all the world knows, Hamburg had no recurrence of Asiatic cholera in the summer and autumn of 1893; but as all the world does not know, the River Elbe, the source of Hamburg's water supply, was as badly polluted with cholera poison in 1893 as it was in 1892.

Naples had a similar experience with similar results from the cholera epidemic of 1885; Chicago from her typhoid epidemic of 1890-92; and London, Paris, New York and other large cities have been driven, from time to time, by some unusual incidence of a "sensational disease," to seek the improvement of their water supplies even at enormous outlay. In England the great cities of Liverpool and Manchester are now engaged in this work. The former, by one of the greatest engineering undertakings of modern times is impounding a river 68 miles from the city in an artificial lake with a storage capacity of 1,500,000,000 gallons; while Manchester is increasing its present daily supply of 10,000,000 gallons from Thirlmere to 50,000,000 gallons, by an engineering invasion of that loveliest spot in all the Lakeland—the beloved of Wordsworth and Coleridge. So, too, in France, where the municipality of Paris is debating a plan for supplying the city with water from Lake Neufchatel through an aqueduct 300 miles long at an expense of $60,000,000, and involving a tunnel through the Jura Mountains.

These latter plans all look to supplies from unpolluted and unpollutable sources. The Hamburg experiment is that of taking a sewage-contaminated river supply and making it potable; and hence is of more direct interest to this country, where, in the valleys of the Ohio, the Mississippi and the Missouri, so many of the cities must depend upon the rivers for their supply. Already the pollution from inhabitation is a serious evil and it is one which will increase with increasing density of population. The success of the Hamburg filtration system points out the remedy.

Not that the system is new; its value had already been satisfactorily demonstrated at the sister city of Altona, in London, Paris, Berlin and elsewhere. But the Hamburg demonstration is the largest and most successful that has yet been made and the daily tests, prosecuted with rigid scientific accuracy, prove that a badly polluted river may be made to furnish a wholly satisfactory water supply for a large city.

CONSTITUTIONAL POWER OF CITIES TO PUNISH ADULTERATION OF MILK.

A city council may protect health, under its police power and statutes delegating authority to it, the Supreme Court of Louisiana holds, in State v. Stone, by prohibiting the adulteration of milk, and may adopt ordinances to that end. Such ordinances are not open to the objection that they transcend the limits of municipal authority; the purpose being the protection of public health. To secure such a

purpose, persons and property are subjected to many restraints and burdens. Those who directly feel the restraints and burdens are presumed to be rewarded by the common benefit secured. Ordinances prohibiting the adulteration of milk are designed to insure the purity of an article of food upon which many families are dependent. It is of universal consumption. So police regulations upon the subject are designed to prevent fraud and protect health. The standard adopted to test the purity of the milk can not operate to the exclusion of all other evidence upon the subject. Upon proof of the unreasonableness of the standard, that part of an ordinance relating to standard of purity of milk will be illegal, and amenable to the charge of unreasonableness.

REMOVAL OF LODGE PHYSICIANS.

Brendon v. Worley, decided by the General Term of the New York Court of Common Pleas May 7, 1894, was an action brought by a physician to recover for services rendered, as such, to a lodge. He was elected its physician, pursuant to a provision of the by-laws of the lodge that a legally qualified physician should be elected and remain in office during the pleasure of the lodge. The compensation was payable quarterly. No provision was made for the removal of the physician of the lodge at a special meeting, or one called for that purpose, nor was there anything inconsistent with the right of the lodge to discontinue its employment of the physician at a regular or stated meeting. Nor was any ambiguity apparent from the by-law for the election. Under these circumstances, the Court holds that, with the adoption of a resolution, at a regular meeting, for the physician's dismissal, and notice thereof to him, his employment must be deemed to have come to an end, and that he could not collect compensation beyond that time.

RIGHTS PENDING APPEAL FROM JUDGMENT REVOKING LICENSE.

The Supreme Court of Montana holds, in the case of Board of Medical Examiners v. Kellogg, decided March 19, 1894, that the staying, pending an appeal of the operation of a judgment revoking a physician's license is a matter of discretion in the trial court. Consequently, where such Court refuses to grant the stay, and there is nothing showing that its discretion has been abused, its action in the matter will be treated as final. Whether such an order staying proceedings on the judgment, as was sought in this case, for the purpose of permitting the former licensee to continue the practice of medicine, notwithstanding the revocation of his license, until review and final determination of the appeal to the Supreme Court would, if granted, stay the operation of the statute against one practicing medicine without license, and shield him from the prosecution and penalty therefor, especially if the judgment revoking his license be affirmed, the Supreme Court says, is a question of grave importance, which would arise in the event of such a prosecution, but which it does not feel at liberty to determine in this collateral presentation.

PRIVILEGE DOES NOT EXTEND TO CRIMINAL CASES.

The rule as to privileged communications between patient and physician, the Supreme Court of California holds, in the case of People v. Lane, decided March 3, 1894, does not apply in criminal cases. The chapter on "Witnesses" in the California Code of Civil Procedure, limits the rule to civil actions, and the Penal Code, which expressly preserves the rule as to husband and wife in the chapter determining "who may be witnesses in criminal actions," makes no mention of physician and patient. At common law the rule as to physicians was not observed in either civil or criminal cases. The statutory privilege was not conferred to shield a person charged with the murder of another, and it certainly was not intended to be used as a weapon against one charged with crime.

CORRESPONDENCE.

Editorial Correspondence.

SAN FRANCISCO, CAL., June 4, 1894.

We left Denver at 2:30 A.M., May 31, and arrived at Colorado Springs at 5 A.M. It still rained, and the Pike's Peak railway having been washed out by the mountain floods, there was nothing to do but to see what we could of Colorado Springs. Mr. Buckman, of the Chamber of Commerce, informed us that the El Paso Club was open to the pilgrims and many availed themselves of the privilege.

Dr. Anderson invited a party to luncheon in the afternoon, and Dr. Solly invited a party to dinner. It rained too hard to go out and there was music and dancing at the "Antlers." There was no prospect of getting away by the Colorado Midland and the railway company finally concluded to send us to California by way of the Atchison, Topeka & Santa Fé, Mojave route, and we remained that night in Colorado Springs. Various members of the party were entertained at luncheon, by Dr. Moore, and Dr. Hunter took as many as possible out driving, the clouds having stopped dripping for the nonce. The mist lifted from the brow of the noble peak and the pilgrims had a good view of the monarch of the Rocky Mountains. We left Colorado Springs at 4:35 P.M. for California by the Southern route.

A word about Colorado Springs may not be out of place. There are no springs there; the springs are at Colorado City and Manitou—the former three and the latter six miles distant. The place seems largely dependent for support on the crop of valetudinarians who come to be harvested there. Our party were quite unable to judge of the merits of Colorado Springs as a resort for consumptives, on account of the almost incessant rain during the time of our visit. The physicians are clever, and the people hospitable and sociable.

Shortly after leaving the Springs we arrived at Pueblo, Col., which place was largely under water, owing to an inundation by the Arkansas River. The railway tracks and the lower part of the city were badly damaged. After much

difficulty our train was sent over the Denver & Rio Grande Railway to Trinidad, where we arrived about 5:30—owing to the wretched condition of the road on account of rains we only averaged about seven miles an hour on this part of the journey. We were at Trinidad furnished an extra engine and our train made about fifty miles an hour up to Raton, N. M., where we had an excellent breakfast. Here we had a fine view of the "Spanish Peaks," lifting their snow-capped tops grandly in the air. We dined at Larny, the Santa Fé junction, and took supper at Albuquerque, N. M. At the latter place the travelers visited the old town, peered curiously into the adobe houses built upon the narrow, crooked streets, saw the old Mission, now nearly three hundred years old. We then took a new train crew and pounded along on our way across the plains and up the mountains to Flagstaff.

I omitted to mention that Dr. X. C. Scott and Dr. J. E. Woodbridge and party rejoined us at Pueblo. They had anticipated a trip through the mountains on the Denver and Rio Grande Railway to join us at Buena Vista, Col., while we visited Denver, but their trip was cut off by the floods. They were finally taken in farm wagons about twenty-five miles, in the midst of a pouring rain, to Pueblo, where as already stated they found their way back to the ASSOCIATION train. Dr. Maclean's party that had intended to go with us via the Midland Railway, left Colorado Springs for Denver the same night. I inclose a list of them:

LIST OF DR. MACLEAN'S PARTY.

Donald Maclean, A. N. Collins, R. W. Gilman, A. W. Imrie, D. LaFerte, F. W. Mann, J. J. Mulheron, F. W. Robbins, F. B. Tibbals, W. G. Hasty, Detroit, Mich.; W. E. Burtless, St. Clair, Mich.; H. S. Chapman, F. B. Galbraith, Pontiac; W. T. Dodge, Big Rapids; H. Kremers, Holland; D. McLeay, Prairieville; C. G. Suylandt, Gladwin; H. D. Thomason, Albion; D. E. Fuller, Hastings; G. W. Stoner, Mich.; M. Stamm, Fremont, Ohio; A. L. Smith, Montreal, Canada.

Sunrise on the morning of June 3 found the ASSOCIATION train making only moderate time climbing the mountains near Flagstaff. The snow-capped San Francisco peaks were in sight, the air cool and the day bright, altitude 7,960 feet. We crept down the mountain about a thousand feet or thereabouts and breakfasted at Williams. From there we made a rapid descent to the Colorado River where it forms the California boundary, and the basin only 450 feet altitude. Certain high rocks here called the "Needles," give the station its name. Here we entered the great Mojave Desert, and after dinner at the "Needles" two powerful engines pulled us up to Barstow, Cal.

The ASSOCIATION train left the "Needles" at 7 o'clock P.M. June 3 and proceeded to Mohave, where it was turned over to the Southern Pacific Railroad. We breakfasted at Bakersfield June 4. A committee, consisting of Drs. Chas. Dennison, X. C. Scott and the editor, having collected money sufficient for the purpose from the passengers, who very cheerfully responded to their request, a souvenir to consist of a gold watch chain with a suitably inscribed medallion, was presented to Mr. J. M. Connell, the efficient and courteous agent of the Santa Fe line, who had accompanied us during the long journey.

The presentation speech of the editor, as near as I can remember it, was as follows:

"Mr. Connell: I have been deputed by my colleagues of the committee, to present to you, on behalf of the passengers of the ASSOCIATION train, this souvenir as a token of our appreciation of your untiring energy, your uniform courtesy and the care with which you have attended to our wants and endeavored to facilitate our progress.

"We have crossed mountains, traversed floods, and tackled the steaks of Bakersfield, and through it all you have done your best to reassure the timid, to encourage the wearied, and generally to assist us in every way."

Mr. Connell, in replying, seemed visibly affected by the unanimity of sentiment expressed by the passengers, but he distinctly disclaimed any responsibility for the Bakersfield steaks.

The Southern Pacific people pushed the train on its way with great rapidity, and we arrived in San Francisco about 4 o'clock, where some of the members of the Committee of Arrangements met us at the Oakland ferryboat. We found that Dr. Maclean's party had arrived a few hours before. Others by other roads arrived about the same time or a little later, so that it may be fairly said that the delegates from east of the Rocky Mountains were in San Francisco on the day before the meeting.

JOHN B. HAMILTON.

Letter from Europe.

PRAG, BOHEMIA, May 15, 1894.

To the Editor:—I have delayed writing until I had become fairly settled and sufficiently acquainted with the methods of work here to be able to give you in a few letters to the JOURNAL, as you requested, some idea of the methods of study in a German University and particularly some idea of what is being done in internal medicine. As I came abroad to do some practical work in pathology and clinical diagnosis, I shall not travel about from place to place to see different men, but shall remain at Prag until the end of the summer semester, the latter part of July. My letters may therefore be lacking in the interest that would come from change of scene and personages.

Prag is a wonderful mixture of the old and the new; it is a city of delightful surprises and of strange contrasts. Beautifully located in the valley of the Moldau, it has on the west a hill crowned by the venerable, imposing and historic Hradschin, the former capitol or citadel of the city, more than six hundred years old; on the east a hill, the Weinberg, covered with modern buildings, and with the gilded dome of the new Bohemian Museum shining in striking contrast to the somber gray spires of the old cathedral across the river. Crooked, narrow, mediæval streets bring one with a sudden turn into modern busy thoroughfares.

The mixture of the two races, the Germans or Teutons and the Bohemians (Czechs) or Slavs, does not, perhaps, seem as unnatural to one coming from a cosmopolitan city like Chicago or New York where one hears all languages, as to one coming from a city or town where practically but one language is spoken. But it does seem strange that after many years of commingling, the tendency of the two races to-day is to grow more and more separate. Of the three hundred thousand inhabitants of Prag about forty thousand are Germans. Their intelligence, industry and sobriety have given them more and more power until the Czechs view with alarm, or at least with envious jealousy, the riches, position and prosperity of their Teutonic neighbors. There is much bitter feeling between the two races, and one may find stores where only Czechish is spoken and this sometimes when the proprietors are able to speak the German language but where, unless one speaks Czechish one can not buy.

The University, the oldest in Europe, founded in 1348 by Charles IV., has two departments, a German and a Czechish. In medicine there are two faculties and two bands of students as distinct as two bodies of homeopathic and regular students. The hospital patients are divided, each faculty getting its proportion. This arrangement, now in vogue for eight years, seems to work well. Although the students mingle on the street and in the corridors of the hospitals common to both, there is apparently no clashing. I have naturally seen and heard only the German side and judge perhaps not impartially, that the medical work of the Germans is vastly superior to that of the Czechs.

The hospital buildings of the medical faculty show the

same striking contrast seen in other parts of the old town. Some of the work is done in buildings that must be hundreds of years old. The General Hospital was built in 1790 and enlarged about sixty years ago. It is far inferior in many respects to the more modern hospitals. It is being gradually remodeled, however. Thus I find that while the second medical clinic, that of Jaksch, has at its command several small, dingy old rooms, the first, under Pribram, has a pleasant, well-lighted amphitheater with nicely equipped rooms for the Professor and his assistants, a microscopic room, a bacteriologic room, etc., and wards that will compare well with those in more recently constructed hospitals. The Institutes of Anatomy, Pathologic Anatomy and Chemistry are all modern and leave little to desire in the way of construction and equipment. The Lying-in Hospital is also a large modern building. I shall try to speak later more in detail of these buildings and of the work done in them.

The fact that fine buildings are not necessary in order that good work may be done is well illustrated here. For instance, Jaksch in his not very inviting quarters has taught and studied so that now he is known over Europe, and America as well, as one of the leading authorities in clinical diagnosis. He feels, however, the need of better accommodations. He remarked to me the other day that probably nothing short of an epidemic of cholera where he was sure in his miserable quarters the death rate would be high, would induce the authorities to remodel or rebuild this portion of the hospital.

I was asked several times why I chose Prag in preference to some of the larger schools, such as those of Vienna, Berlin or Munich. The two names that drew me to Prag were those of Chiari and von Jaksch. I have not been disappointed in the men. And with the smaller number of students one comes very close to the professor and does not have to rely entirely upon assistants. These are not by any means the only strong men in the faculty. A faculty including, among others, such men as Huppert in chemistry, Hueppe in bacteriology. Hering in physiology, Rabl in anatomy, Gussenbauer in surgery, Rosthorn in obstetrics, is certainly one to be proud of.

In my next letter I shall try to speak more in detail of the work of some of these men. Very truly yours.

JAMES B. HERRICK.

A Correction.

PHILADELPHIA, June 4, 1894.

To the Editor:—In the discussion before the College of Physicians of the city of Philadelphia, on the registration of tuberculosis, on Jan. 12, 1894, I made the following statement: "Dr. Williams, of the Brompton Hospital, has been quoted as an opponent of the theory of contagion, but he has written a paper in which he shows that a large number of nurses of the Brompton Hospital have contracted tuberculosis. I think that he has traced some fifteen or twenty cases." Dr. Williams has since then called my attention to the fact that I misquoted his article, and a re-reading shows that this is true. In my speech I spoke from memory and entirely extemporaneously. The fifteen or twenty cases which I credited to nurses occurred among persons who had been employed in one capacity or another about the hospital and really only one case occurred in a nurse during her time of service. The time covered by Dr. Williams' investigation is thirty-six years. While I still believe that the conclusion which I meant to draw from Dr. Williams' paper, namely, that the experience of the Brompton Hospital can not be used as an argument against the contagion theory of tuberculosis, is correct, I deeply regret having misquoted his article in letter and most cheerfully make the correction. Dr. Williams contends that his paper "furnished only one case of consumption contracted during residence among the Brompton nurses, and that a doubtful one, in a period of thirty-six years." Respectfully,

LAWRENCE F. FLICK.

ASSOCIATION NEWS.

American Medical Association.—At the opening of the general session of June 8, Dr. Holton presented the majority report of the committee on the revision of the Code of Ethics.

The minority report was read by Dr. Didama. On motion of Dr. Scott, of Pennsylvania, the minority report was substituted for that of the majority, and on motion of Dr. E. Fletcher Ingals this was laid upon the table.

The Committee on Nominations of the AMERICAN MEDICAL ASSOCIATION presented the following list of officers for the ensuing year, which was adopted without opposition: President, Donald Maclean of Michigan; First Vice-President, Sterling Loving of Ohio; Second Vice-President, William Watson of Iowa; Third Vice-President, W. B. Rogers of Tennessee; Treasurer, H. P. Newman of Illinois; Secretary, W. B. Atkinson of Pennsylvania; Assistant Secretary, G. H. Rohé of Maryland.

Board of Trustees—J. T. Priestly, J. E. Woodbridge, W. Graham, I. C. Patterson, Joseph Eastman.

Judicial Council—D. W. Crowse, R. C. Moore, T. D. Crothers, G. B. Gillespie, W. T. Bishop, H. C. Hughes, J. I. Heilberger.

Annual Address on Medicine—W. E. Quine of Illinois.

Annual Address on Surgery—C. A. Wheaton of Minnesota.

Annual Address on State Medicine—H. D. Holton of Vermont.

Secretary Atkinson announced the election of the various Section Officers, as follows:

Physiology and Dietetics—E. H. Woolsey, of Oakland, Cal., Chairman; C. G. Cloddock, St. Louis, Secretary.

Surgery and Anatomy—J. Ransohoff, Chairman; R. St. Sayre, Secretary.

Practice of Medicine—E. W. Kellogg, Chairman; W. E. Quine, Secretary.

Neurology and Medical Jurisprudence—D. R. Brown, Chairman; W. J. Gavigan, Secretary.

Obstetrics and Diseases of Women—C. N. Martin, Chairman; O. Worder, Secretary.

Ophthalmology—Edward Jackson, Chairman; H. V. Würdemann, Secretary.

State Medicine—Liston Montgomery, Chairman; C. H. Sheppard, Secretary.

Laryngology and Otology—J. F. Fulton, Chairman; T. J. Gallagher, Secretary.

Diseases of Children—E. H. Small, Chairman; G. N. Michel, Secretary.

Materia Medica and Pharmacy—W. Helpsey, Chairman; G. F. Hanson, Secretary.

Dermatology and Syphilography—A. E. Regensburger, Chairman; D. H. Rand, Secretary.

Dental and Oral Surgery—M. H. Fletcher, Chairman; E. S. Talbot, Secretary.

Baltimore was chosen as the next place of meeting, and Dr. Chisholm was elected Chairman of the Committee of Arrangements.

The question of the JOURNAL advertisements was referred to the Judicial Council.

The revision of the Constitution and Code of Ethics was indefinitely postponed.

The reports of Drs. Wingate and Comegys, favoring the establishment of a National Department of Public Health, were indorsed by the ASSOCIATION.

Resolutions were adopted favoring the transfer of the ASSOCIATION Library to the Newberry Library, at Chicago.

The salary of the Treasurer was fixed at $300.

Resolutions on the death of Dr. John H. Rauch were adopted.

A resolution of thanks was tendered the retiring officers and the people of the Pacific Coast who had made the meeting a success.

PUBLIC HEALTH.

Decrease of Typhoid Fever.—Typhoid fever has decreased in Paris from 2,120 deaths in 1880 to 1,035 in 1886 and 533 in 1893, when the population was 2,350,000. Last year there were 676 deaths from disease in Chicago when the population was estimated at 1,600,000. The disease has, however, diminished remarkably in this latter city since 1891, when there were 1,997 deaths in a population of 1,322,000.

Alexandria's Water Supply.—The water supply of Alexandria is pronounced deplorable and a constant menace to the most important seaport town of Egypt. The defects, as pointed out by Koch in 1883, by Hobrecht subsequently, and now by Dr. Bilter, the Sanitary Inspector of the municipality, lie in the inadequacy of the filter beds; filtration exists only in name; bacteriologically the water is as impure after as before filtration, owing to the rapidity with which it is passed through the beds; each cubic centimeter of the so-called filtered water contains from 2,000 to 5,000 bacteria. The cause of the delay in applying the remedy is the usual one in Egypt—general bankruptcy and maladministration.

Leprosy in North America.—Based upon the statistics of the American Dermatological Association and of others, Dr. James Nevins Hyde reports that there have been 560 cases of leprosy in the United States, distributed as follows: Arkansas, 3; California, 158; Dakota, 2; Florida, 6; Georgia, 1; Idaho, 2; Illinois, 13; Indiana, 2; Iowa, 20; Louisiana, 85; Maryland, 4; Massachusetts, 5; Minnesota, 120; Missouri, 2; Mississippi, 2; New York, 100; New Jersey, 1; Oregon, 3; Pennsylvania, 6; Utah, 3; Wisconsin, 20. Dr. Hyde, while admitting that tuberculosis "exposes the health of our population to a greater danger than leprosy," nevertheless believes that the presence of leprosy in this country offers a constant menace to its inhabitants and "presents a problem in State and sanitary science which the general government alone can solve."

Contagion in Public Conveyances.—The *Boston Medical and Surgical Journal* calls upon the physicians in that city to discourage the use of public hackney vehicles for the conveyance of cases of contagious and infectious diseases to hospital, and cites the police regulation which forbids such procedure. There is a hospital ambulance for these cases, but the *Journal* admits, while urging physicians to its use, that there is no assurance against secondary infection traceable to the same ambulance being used for both scarlet fever and for diphtheria cases, and no assurance that the same pillows, mattresses and blankets are never used without precautions for more than one patient or that the ambulance is disinfected after each trip. However, this is a minor matter as compared with the menace to public health by the conveyance of infected persons in public hack vehicles.

Retrogressive Sanitary Legislation.—For nearly eighty years every town in Massachusetts has had its board of health to which the people had a right to look for sanitary protection—a board either elected as such or, in the event of failure to elect, then the selectmen of the town *ex officio*. A correspondent in the *Boston Herald* calls attention to the fact that, by the provisions of Chapter 218 of the Acts of 1894, this provision has been repealed so far as all towns having more than 2,000 inhabitants in each are concerned, and the voters in such towns may or may not elect boards of health as they see fit. The long-standing provision by which every town, no matter what its size, had its legally authorized board of health is now restricted to places of less than 2,000 population. This correspondent says: "Now it is nothing less than a sanitary axiom that increasing density of population requires the enactment of better sanitary laws for the protection of the people; and, since . . . this increase has been mainly in those towns which have a population of more than 2,000 in each, and not in the small towns, the legislation in this direction ought to be in the line of improvement and not of retrogression. Measures ought, to be taken therefore, to remedy this defect before the close of the present session."

The Much-maligned Sewer Gas.—At one of the general sessions of the recent Congress of American Physicians and Surgeons no less than three papers on sewer gas were presented and in two of these the innocuousness of the air of sewers was advocated. It is asserted that exact methods of investigation show that, as ordinarily found, it does not differ conspicuously from the air we are accustomed to breathe; that there is a comparative poverty of bacterial life in sewer gas—that, in fact, more disease germs are found in the air of houses and school-rooms than in the air of sewers; that there is no conclusive demonstration that sewer gas stands in causal relation to the diseases for which it has been held accountable; that the worse the odor of a sewer the less the danger of contracting disease from it—particularly diphtheria, etc., etc. A writer in a recent number of the *Pall Mall Magazine* confesses to a melancholy amusement in reading similar statements in the scientific journals of our "kin beyond the sea." He finds it grimly diverting to now learn, "after the hundreds of sanitary tracts in which the deadliness of sewer gas has been an axiom of faith, after the thousand-and-one deaths from it in the contemporary novel, that it may be welcomed without fear to our hearths and homes;" and opines that "we may yet live to see it manufactured artificially for the improvement of the public health, and conveyed to our overcrowded drawing rooms with all the paraphernalia of pipes and the mendacious meter."

Cholera in Mecca.—Notwithstanding all that we have been told of the sanitary precautions enforced with the Mecca pilgrims, it is announced that Asiatic cholera has again broken out in "the holy city." What this foreshadows the student of cholera literature can best appreciate. Some more radical measures than have yet been resorted to are obviously necessary to secure the world against the propagation and spread of this disease by the Mohammedan devotees. The Moulvie Rafiuddin Ahmad has contributed to the *British Medical Journal* his views on the subject, which are of more than ordinary interest as coming from a Moslem of the Moslems. He holds the British Government responsible for the redress of the following grievances: Overcrowding of pilgrim vessels; neglect of sanitary measures on the part of the authorities on board ship; absence of wholesome food and insufficiency of fresh water supplied to the pilgrim passengers; absence of suitable medical aid (Mohammedan lady patients can only be treated by female doctors, therefore every pilgrim ship must have one male and one female doctor, both understanding at least two Mohammedan languages of the East); absence of suitable lodgings and competent doctors at quarantine stations. He concurs in the opinion of those who have studied the subject, that the Sultan should appoint a commission to inquire into the following: The principal sources of cholera in the Holy Land; the burial of flesh and blood of animals sacrificed during the Hadji; the condition of latrines and drainage in general; the purity and sufficiency of water supplied to the pilgrims; the poverty of the pilgrims; the hardship imposed upon pilgrims by enforced quarantine; causes of sickness

upon pilgrim vessels; the condition of houses occupied by the Hadjees; cases of extortion and official despotism; the best means of protecting the property of the Hadjees; prevention of danger to the life and limb of the Hadjees; how to secure a safe and comfortable journey to the pilgrims. He declares that the pilgrims "ask nothing but the barest necessaries of human existence and the most essential rights of citizenship, namely, pure air, pure water, and security of life and property." He is discreetly silent as to the prospect of the British Government attempting to redress the grievances specified; points out that the expenses of the commission to be appointed by the Sultan must be defrayed by those interested in the sanitary improvement of Mecca and in its historic and religious features, since the Porte is in chronic financial straits; and makes an urgent appeal to the Sultan for his consent to the commission on religious and patriotic grounds.

MISCELLANY.

Mexico's Great Sanitary Undertaking.—It is announced by telegraph that on June 4, the civic authorities of the City of Mexico had entered into a contract for the completion of the great drainage works of the Mexico Valley. The estimated cost is $3,500,000. The work is to be done on or before May 1, 1896.

The N. S. Davis Chair.—Mr. William Deering, a wealthy Chicago manufacturer, has given $50,000 to the trustees of the Northwestern University, to endow a chair in honor of Dr. N. S. Davis in the medical department of the University—the old Chicago Medical College, of which Dr. Davis was the founder.

American Medical Editors Association.—The Association of American Medical Editors met at San Francisco June 8, and elected officers for the ensuing year as follows: President, John B. Hamilton, of Chicago; Vice-President, G. H. Gould, of Philadelphia; Secretary, H. B. Ellis, of San Francisco. The next meeting will be held at Baltimore during the session of the American Medical Association at that city.

The New York Woman's Medical College Commencement.—The "Blackwell institution" held her twenty-sixth annual celebration, with a graduating class of seventeen somber-robed lasses, on June 1. Mr. Robert Olyphant gave away the diplomas, the Rev. Dr. Bradley gave the address of warning to the graduates, and Dr. J. W. Roosevelt congratulated the Faculty on the exit of the class of 1894.

Sir James Paget.—On May 23, the eminent London surgeon celebrated his golden wedding-day. The General Medical Council of Great Britain, on that day, took the lead in presenting, through its president, a resolution of hearty congratulations to Sir James and Lady Paget respecting their half-century of eventful and happy wedded life. Hundreds of American physicians will join in the sentiment of congratulation and good will.

Localized Casualties.—Noting the statement of the *Medical World* that "we feel compelled to refer again to the poor woman who was shot in the oil regions some time ago," the *Medical Age* asks: "And why not drop a tear for the man who was fatally stabbed in the rotunda, and for him who was kicked on the highway?" whereupon the *California Medical Journal* recalls the case of the woman who was accidentally shot in the waterworks, and that of the man injured upon the long bridge.

Perils of Football.—The London *Lancet* has compiled a partial list of football casualties that occurred in England from October, 1893, to March 20, 1894. Ten deaths are recorded. The different British football games are considered. It concludes that: 1, football is dangerous; 2, contemporary changes have in some respects increased, in some respects lessened, the dangers; 3, probably no modification in the law (so as to arrest the dangers) would leave the game as good a one as it now is from the athletic point of view. A drastic code is advised, favoring a sweeping and inclusive definition of that growing evil, "professionalism."

Indecency in Photography.—"Medicus," in the *New York Medical Journal*, doubts whether photographic illustrations of anatomical and surgical phenomena exhibited by the human body convey as clear and instructive ideas of the conditions worthy of attention as may be conveyed by outline illustrations and drawings. But he has no doubt whatever, and the profession generally will agree with him, that if photography is to be employed at all in depicting the human body and its organs, decency requires that, even in medical publications, the scope of the photograph should be confined to the parts in which the phenomenon noted occurs; that the rest of the body, being unnecessary to the demonstration, be left out of the field, or be suitably covered up.

Billroth's Successor.—To bend the bow of Ulysses, says the London *Lancet*, is proverbially a difficult undertaking, and to succeed a Billroth in the chair he adorned is an object of ambition to which few indeed legitimately aspire. Still, the duties of that chair have to be discharged, and the Vienna school has just taken the primary steps to fill it. At a meeting of its medical faculty three candidates were nominated for the post: *Primo loco*, Vincenz Czerny, Professor of Surgery in University of Heidelberg; *secundo loco*, Karl Gussenbauer, Professor of Surgical Pathology and Therapeutics in the University of Prague; and *tertio loco*, Johann Mikulicz, Professor of Surgery in the University of Breslau. There is little doubt that the first named surgeon will be appointed.

An "Extempore" Operation.—Just one week after the official announcement of the perfect health of Kaiser Wilhelm II, as detailed in a recent number of the JOURNAL, that sensational sovereign submitted to an operation for the removal of an encysted tumor from the imperial cheek. It was gravely explained, soon after, that the incident was entirely fortuitous; Prof. Bergmann having through a misapprehension, appeared at a *fête* to which he had not been invited, the emperor, in order to put him at his ease, suggested that he should operate for the entertainment of the guests, volunteering, at the same time, to furnish the tumor. Later advices would seem to show that, for an extempore performance, there had been ample preparation made; Prof. Bergmann was assisted by Profs. Leuthold and Schlange.

Medical Instruction in China.—The first session of the European Medical School at Tientsin, under the auspices of the Viceroy, Li-Hung-Chang, gives gratifying promise of success in this effort to spread modern ideas of medicine in the Flowery Kingdom. There are in attendance a class of twenty-three Chinese students, selected by examination at Shanghai and Ningpo, all of whom speak English. The lectures are given in accordance with modern methods, except that there are as yet no cadavers available for dissection and anatomy is, therefore, taught by wax models. On the recommendation of the late Sir Andrew Clark, the direction of the school has been put in the hands of Surgeon-Captain Heuston, of the British Army Medical Staff, who has taken out to the school a complete outfit for its laboratories, which will be made equal to the best modern laboratories in every respect. The first cost of the school was about $24,000, and the income necessary for its maintenance is assured by annual contributions furnished by the native customs authorities of Chefoo and Tientsin.

Tramps and the Smallpox.—The tramp as a factor in the dissemination of the contagious diseases continues to be a subject of solicitude by sanitary authorities, not alone in

this country but abroad. A recent report by Dr. Armstrong the Medical Officer of Health for Newcastle-on-Tyne shows that of sixty-three towns in England, invaded by smallpox in 1892-93, more than one-half, 59 per cent., had the infection primarily from vagrants or tramps. In only nineteen out of the sixty-three towns was it reported positively that the disease was due to some other source, while subsequent infection by tramps occurred nine times in three towns, twelve, fifteen and eighteen times in one town each and no less than twenty-five times in the town of Nottingham. As a result of Dr. Armstrong's inquiries it is considered desirable: 1, that vagrants should be restrained in their powers of carrying infection about the country, especially during epidemics; 2, that they should be made to report their movements; 3, that they should, when considered requisite, be subject to disinfection and detention for such times as the sanitary authority of the district in which they are found may think necessary for the protection of the public health; 4, that in epidemic times all persons frequenting casual wards or common lodging-houses should be medically examined on admission; 5, that sanitary authorities and the police should have power to detain for medical examination any vagrant found in any public place.

Medical Missions at the "May Meetings" in London.—The great Church of England Society for Missions, depends largely upon its medical corps. At the "May Meetings" for 1894, the influence of medicine as a means to the end that is held in view by that Society was enlarged upon as never before. At one of the great gatherings held in Exeter Hall on May 18, the following statements were brought forth by the medical representatives there present:

"Dr. Herbert Lankester presented a report, in which it was stated that the first medical missionary of the Society was William Welton, a Suffolk surgeon, who was ordained forty-five years ago, and went to Foochow. Until 1870, however, they had only two unordained medical missionaries. Now they have twenty-five, besides one who was ordained, and one lady. These all had British qualifications, some being of the highest order. There were also medical men with native qualifications working in Palestine and the Punjaub. Until 1891 the Society only granted $500 for each missionary, who had to collect what more was needed. They now raise $5,000 among themselves. Rev. F. E. Wigram, who occupied the chair, said that opportunities for evangelizing the people were obtained by medical missions which could be got in no other way. Rev. Dr. Elliott said that he had spent six and a half years at Gaza, a most fanatical Moslem town, where other Christian work was forbidden, and he had been freely allowed to preach Christianity to his patients, whose numbers sometimes reached 180 a day. When he went to Gaza there was not another medical man, with either British or Turkish qualifications, in a population of 28,000. There were only quacks, *who beat girls black and blue for hysteria*, and gave as a panacea for serious fevers the water with which *the name of Allah was washed off a dish on which it had been written*. Scientific treatment came as a revelation to the people of all classes, and had a wonderful effect in breaking down prejudices. It was a remarkable fact that the Jews in Jerusalem braved the excommunication of their rabbis and went to the Christian doctors of the London Jews' Society, rather than to the hospitals amply equipped and freely opened by European Hebrews such as the Rothschilds."

Professor Czerny Succeeds Billroth: A Great Work Proposed.—Dr. Vincenz Czerny, of Heidelberg, Billroth's "most distinguished pupil," has been invited to the post of Lecturer on Clinical Surgery in the University. It is stated in the London *Lancet* that Czerny at first refused to take the chair, but afterwards consented on the proviso that the authorities would undertake to remove certain drawbacks, local and architectural, against which Billroth, with all his force and prestige, had long struggled in vain. Changes will be made by the demolition of old buildings and by the erection of a series of new buildings for medical and surgical instruction on the site that was identified with Billroth's career. Czerny's acceptance of the position has hinged upon the execution of plans little different from those that were the cherished aim of Billroth's maturer years; one of whose objects was the founding of a suitable museum of pathologic specimens accumulated by himself and his pupils in intestinal surgery and other preferred branches. These changes will in effect, be a kind of monument to Billroth, rendered possible by the fealty of his former associate to his, Billroth's, conception of what Vienna owed to the cause of surgery, if not to the master in his lifetime. The praiseworthy insistance of Czerny, as the *Lancet* remarks editorially, indicates the *esprit du corps* that has been observed again and again in the highest walks of science and the healing art of Germany, having for its recent and most effective parallel the animus disclosed by Pettenkofer on behalf of sanitary science. When he was asked by the civic authorities, says the *Lancet*, what best reward they could furnish him as a return for his sanitary achievements for Munich, Pettenkofer's reply was: "Build a sanitary institute." These great lights of Germany are zealous to make it easier for their successors to reach results than they have found it, even in the greater universities. While Billroth's efforts towards a higher standard of clinical facilities were frustrated in his own lifetime, Czerny will see to it that his master's ideals are in part at least, materialized without delay. Czerny himself will doubtless reap some of the advantage, from the important changes proposed, as well as the University, and science and the faculty of the future.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from June 2, 1894, to June 8, 1894.

First Lieut. EDWARD L. MUNSON, Asst. Surgeon, upon being relieved from duty at Camp Merritt, Mont., by First Lieut. WILLIAM H. WILSON, Asst. Surgeon, will proceed without delay to Ft. Yellowstone, Wyo., and report to the commanding officer, for temporary duty with troops in the National Park during the season.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending June 9, 1894.

Medical Inspector GEORGE A. BRIGHT, detached from U. S. S. "Newark," ordered home and granted three months leave.

Surgeon R. A. MARMION, detached from Smithsonian Institute, and ordered to the U. S. S. "Newark."

Medical Inspector D. MCMURTRIE, ordered to the Smithsonian Institute.

LETTERS RECEIVED

(A) Akins, William Thomas, Decatur, Ill.; Albright, J., Grand Rapids, Mich.

(B) Barnett, J. R., Neenah, Wis.; Berger, S. C., Philadelphia, Pa.; Bach, J. A., Milwaukee, Wis.

(C) Chicago Policlinic, Chicago, Ill.; Case, Isaac L., Burlington, Mich.; Cobb, M. B., San Diego, Cal.; Clouse, G. M., Columbus, Ohio; Cleaves, M. A., New York, N. Y.; Cone, Andrew, New York, N. Y.

(D) Dunn, Ira J., Erie, Pa.; Douglas, Richard, Nashville, Tenn.; Dow, E. S., Allston, Mass.; Dunglison, R. J., Philadelphia, Pa.

(F) French, Pinckney, St. Louis, Mo.

(G) Greene, Chas. S., San Francisco, Cal.

(H) Hummel, A. L., (2) Philadelphia, Pa.; Hanson, A. H., Chicago, Ill.; Hoffman, Joseph A., San Francisco, Cal.; Hammond, W. A., Washington, D. C.; Hoffstot, W. H., Beatrice, Neb.; Holdenstein, I., New York, N. Y.

(J) Jones, H. W., Danville, Ill.; Judkins, E. H., Portland, Me.

(L) Lippincott, J. B. Co., Philadelphia, Pa.; Labordine Chemical Co., St. Louis, Mo.; Loeb, H. W., St. Louis, Mo.; Ladd, C. W., Cannelton, Ind.

(N) Northwestern University, Evanston, Ill.

(P) Plummer, R. N., New York, N. Y.; Pantagraph Printing and Stationary Co., Bloomington, Ill.

(Q) Queen & Co., Inc., Philadelphia, Pa.

(R) Rush Medical College, Chicago, Ill.; Raymond, J. H., Brooklyn, N. Y.

(S) Smart, Chas., Washington, D. C.

(T) Tupper, P. Y., St. Louis, Mo.; Treat, E. B., New York, N. Y.; The Doliber-Goodale Co., (2) Boston, Mass.

(V) Van Vranken, G., San Diego, Cal.

(Y) Ybarra, A. M., Fernandez, New York, N. Y.

PAMPHLETS RECEIVED

Extra-Uterine Pregnancy Simulated by a Small Tumor of the Ovary; Operation; Recovery. By W. H. Morrison, M.D.

Sulphuric Acid Paste in the Treatment of Epithelioma of the Face. By E. Oliver Belt, M.D.

Observations on Four Hundred Cases of Anchylostomiasis. By F. M. Sandwith, M.D.

Congress of American Physicians and Surgeons. Third Triennial Meeting, Washington, D. C., May, 1894.

Enormous Oval Hemorrhoid Encircling the Anus; Whitehead's Operation; Entire Cure. By W. W. Keen, M.D.

Operation Wounds of the Thoracic Duct in the Neck, with a Résumé of Two prior recorded Cases and Two Additional Cases. By W. W. Keen, M.D.

Removal of the Gasserian Ganglion as the last of Fourteen Operations in Thirteen Years for Tic Douloureux. By W. W. Keen, M.D.

Catalogue University of Texas, (Medical Dept.) 1893-94.

Annual Report Board of Health, Winona, Minn., 1894.

Listerine—A few Chapters on Substitution. St. Louis: Lambert Pharmacal Co.